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ABSTRACT

This compilation lists research completed during 1988 in the areas of health, physical education, recreation, dance, and allied areas. The compilation includes 513 entries, most with substantive abstracts, of master's theses and doctoral dissertations from institutions offering graduate programs in those areas. A 1,225-item bibliography of relevant articles in periodicals, including international sources, is included. (JD)

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VOLUME 31, 1989

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VOLUME 31-1989 EDITION

COMPLETED RESEARCH

In Health, Physical Education, Recreation & Dance
Including International Sources

Covering Research Completed in 1988

Edited by CRAIG CHAMBERLAND AND ROBERT J. MOFFATT
for the RESEARCH CONSORTIUM of the
AMERICAN ALLIANCE FOR HEALTH, PHYSICAL EDUCATION, RECREATION AND DANCE.

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Health, Physical Education,
Recreation and Dance
1900 Association Drive
Reston, Virginia 22091
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Purposes of the American Alliance For Health, Physical Education, Recreation and Dance

The American Alliance is an educational organization, structured for the purposes of supporting, encouraging, and providing assistance to member groups and their personnel throughout the nation as they seek to initiate, develop, and conduct programs in health, leisure, and movement-related activities for the enrichment of human life.

Alliance objectives include:

1. Professional growth and development—to support, encourage, and provide guidance in the development and conduct of programs in health, leisure, and movement-related activities which are based on the needs, interests, and inherent capacities of the individual in today's society.
2. Communication—to facilitate public and professional understanding and appreciation of the importance and value of health, leisure, and movement-related activities as they contribute toward human well-being.
3. Research—to encourage and facilitate research which will enrich the depth and scope of health, leisure, and movement-related activities; and to disseminate the findings to the profession and other interested and concerned publics.
4. Standards and guidelines—to further the continuous development and evaluation of standards within the profession for personnel and programs in health, leisure, and movement-related activities.
5. Public affairs—to coordinate and administer a planned program of professional, public, and governmental relations that will improve education in areas of health, leisure, and movement-related activities.
6. To conduct such other activities as shall be approved by the Board of Governors and the Alliance Assembly, provided that the Alliance shall not engage in any activity which would be inconsistent with the status of an educational and charitable organization as defined in Section 501(c) (3) of the Internal Revenue Code of 1954 or any successor provision thereto, and none of the said purposes shall at any time be deemed or construed to be purposes other than the public benefit purposes and objectives consistent with such educational and charitable status.

Bylaws, Article III

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INTRODUCTION

This compilation lists research completed in the areas of health, physical education, recreation, dance, and allied areas during 1988. It is arranged in three parts.

I. Index to Abstracts. In this section, references are arranged under the subject headings in alphabetical order. Instructions for using the index are given at the beginning of the section.

II. Theses Abstracts. These are master's and doctor's theses from institutions offering graduate programs in health, physical education, recreation, dance, and allied areas. Institutions reporting are listed on pages 542 through 544. Most references are accompanied by abstracts of the research, and all are numbered in alphabetical order according to institution. Names of institutional representatives sending in these abstracts are indicated in parentheses after the names of the institution; major professors are in parentheses after each reference.

III. Bibliography. This is a listing of published research, citing articles published in periodicals relevant to Health, Physical Education, Recreation, and Dance reviewed for *Completed Research*.

Universities and colleges are encouraged to submit abstracts of theses completed at their institutions for inclusion in the next issue of *Completed Reserach*. Material should be sent to Craig Chamberland, Chairman of Theses Abstracts.

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ABBREVIATIONS APPEARING IN THESE ABSTRACTS

AAHPERD = American Alliance for Health, Physical Education, Recreation and Dance (abbreviate all familiar organizations, e.g., AAU, NCAA, etc.)
acd = academic or academically
ACSM = American College of Sport Medicine
AD = athletic director
admin = administration
AE = absolute error
ALT-PE = Academic Learning Time - Physical Education
amt = amount
anal = analysis or analyses
ANCOVA = analysis of covariance
ANOVA = analysis of variance
app = approximately
assoc = association or associated
ATPase = adenosine triphosphate
ave = average
BB = basketball
bf = body fat
BP = blood pressure
bpm = beats per minute
BTPS = body temperature pressure saturated
bw = body weight
C = centigrade, Celcius
CA = chronological age
CE = constant error
CG = center of gravity
chem = chemical
chol = cholesterol
CL = contextual interference
CO = county
CO_2 = carbon dioxide
coll = college or colleges
comm = community
curr = curriculum
CV = cardiovascular
DBP = diastolic blood pressure
° = degree
DEPT = department
dev = develop or developmental
diff = difference, differences, differentiate or difficult
DV = dependent variable
educ = education

EKG = electrocardiogram
ELE = elementary
EMG = electromyogram
EMR = educable mentally retarded
exp = experiment, experimental or experience
F = Fahrenheit, F ratio, female or females
fb = feedback
fed = federal
FEV_1 = forced expiratory volume
fit = fitness
gm = gram
govt = government
gp = group
GPA = grade point average
gr = group
grad = graduate, graduation
HC = handicapped
HE = health education, health
HR = heart rate
HS = high school
ht = height
IEMG = integrated electromyographic activity
insig = insignificance or insignificant
IQ = intelligence quotient
JC = junior college
JHS = junior high school(s)
JV = junior varsity
kg = kilogram
kg/m = kilogram per meter
kpm/min = kilopondmeter per minute
KR = knowledge of results
lab = laboratory
LD = learning disability
lit = literature
M = mean, male or males
MA = mental age
max = maximum or miximal
meas = measure, measurement
mf = motor fitness
MMR = mildly mentally retarded
mph = miles per hour
MR = mental retardation
MS = middle school
msec = millisecond(s)
MT = movement time

mvmt = movement
n = number (e.g., of Ss) all numbers in arabic form (e.g., 1 = one, 5 = five, 100 = one hundred)
N_2 = nitrogen
natl = national
NBA = National Basketball Association
neg = negative
no. = number (in text, e.g., the total no. of days . . .)
O_2 = oxygen
% = percent
P = probability ($p < .05$ = significance greater than .05 level; $p > .01$ = nonsignificance at the .01 level)
PE = physical education
PH = public health
pos = positive
PR = pulse rate
prog = program
psi = pounds per square inch
psych = Psychology, psychological
pt = point
PWC_{170} = physical work capacity, PWC (level of HR unspecified)
Q = cardiac output
r = correlation
REC = recreation
rehab = rehabilitation
rep = repetition or repetitions
ROM = range of motion
RPE = rate of perceived exertion
RPP = rate pressure product
rpm = revolutions/min
RT = reaction time
RV = residual lung volume
S = subject, S's = subject's (possessive); Ss = subjects
SBP = systolic blood pressure
sched = schedule
SD = standard deviation
SHS = senior high school(s)
sig = significant or significance
sq = square
st = state
stdnt = student
STPD = standard temperature pressure dry
SV = stroke volume

t = t-ratio
tchr = teacher
temp = temperature
TMR = trainable mentally retarded
TRT = total response time (RT + MT)
univ = university or universitites
US = United States
USSR = Union of Soviet Socialist Republics
VE = variable error
V_E = expired ventilation
VO_2 = oxygen consumption
vol = volume
V_T = tidal volume
wt = weight
x = times
x^2 = chi square
YMCA = Young Men's Christian Association
YMHA = Young Men's Hebrew Association
YWCA = Young Women's Christian Association

NOTE:

1. Measurements are abbreviated (without periods) such as:
   in = inch; sec = second; wk = week; hr = hour;
   m = meter; ml = milliliter; mm = millimeter;
   min = minute; mo = month; oz = ounce; yd = yard, ect.

2. Whenever possible, performance tests are abbreviated
   (eg., CPI = California Psychological Inventory;
   Cattell 16 PF = Cattell 16 Personality Factor
   Questionnaire; MMPI = Minnesota Multiphasic
   Personality Inventory)

3. U.S. Postal Service abbreviations are used for states
   (e.g., AL = Alabama)

INDEX TO ABSTRACTS

This index enables the reader to refer to the items of completed research listed in the Theses Abstracts. Research topics are arranged in alphabetical order. The reference number following each topic corresponds to the listings of completed research dealing with that topic in the Theses Abstracts.

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APPALACHIAN STATE UNIVERSITY (R.L.Johnson)
BOONE, NORTH CAROLINA

1. ALLRAN, K.D. The reliability of a computerized method for assessment of anaerobic power and work capacity using maximal cycle ergometry. M.S. in Physical Education, 1989 (H.S. O'Bryant)

The purpose of this research was to evaluate the reliability of an automated technique to quantify anaerobic power and work capacity using a computerized data collection and interpretation system and max cycle ergometry. A mechanically braked cycle ergometer was modified and interfaced with a microcomputer. Software was designed to input variables, control the collection of data, calculate selected meas and provide a summary of the results of each testing session. Data obtained utilizing the computer automated system and max cycle ergometry was used to establish stability reliability from scores on diff days and internal consistency reliability from multiple trials on the same day. Internal consistency reliability was determined from data collected on Ss (N-30) tested twice on the same day. The 2 trials for each S were separated by 45 min of passive rest. A repeated measures ANOVA revealed no sig diff between trials for time to peak power (p=.21), peak power (p=.914), fatigue rate (p=.248), incline rate (p=.324), av power (p=.986), or total work (p=.313). App 2-5 days later Ss completed a third trial which was used with the m of the previous 2 trials to establish stability reliability. Intraclass coefficients revealed high internal consistency (R=.94), (R=.89), (R=.79), (R=.67) and stability reliability (R=.94),(R=.90), (R=.84), (R=.61) for peak power, av power, fatigue rate, and incline rate respectively. Results of this study indicate that this computer software/hardware interface coupled with max cycle ergometry in this study was a highly reliable method for meas peak power, av power, fatigue rate, and incline rate. Reliability remains questionable for time to peak power and total work.

2. STEWART, K.E. A survey of managerial times within Appalachian State University Physical Education, Health Education, and Leisure Studies theory classes. M.A. in Physical Education, 1989 (E.T. Turner)

The primary purpose of the study was to determine the amount of time employed by selected HE, PE, and leisure studies instructors at Appalachian State Univ, Boone, NC on managerial episodes within their respective theory classes in relation to the teaching discipline of the instructors, the no. of yrs of teaching exp, the day Ss taught and the gender of the Ss. The Ss were all instructors of undergrad theory courses in the Dept. of HE, PE, and Leisure Studies, during the 1989 Spring Semester. Each instructor was observed for a total of 150 min and their respective managerial times were recorded on a score sheet for recorded managerial times. The data collected from the score sheets were anal using Chi-square distribution. The .05 level of confidence was utilized to determine sig diff in the study. The conclusions of the study were as follows: 1) M instructors employed a higher percent of class time for management than F instructors; 2) HE instructors had less recorded management time than PE instructors and leisure studies instructors; 3) The more teaching exp an instructor had, the lower the percent of managerial time he or she employed in the classroom; 4) Instructors who taught shorter length (50 min) classes employed less management time than instructors who taught longer length classes (75 min).

3. TRIPLETT, N.T. Effects of aspartic acid salts on fatigue during weight training exercise and recovery. M.S. in Physical Education, 1989 (M.H. Stone)

The purpose of this study was to examine whether the admin of aspartic acid salts prior to high-volume wt training exercise reduced symptoms associated with fatigue and altered the concentration of plasma amnonia. The Ss were 9 M with a mean (± SEM) age of 26.6 ± 2.4 yr. The wt training session consisted of performing 5 sets of 10 rep of the squat (with an additional 3 warmup sets) at 90% of the highest wt squatted for 3 sets of 10 rep. There were 2 counterbalanced wt training sessions a wk apart; 1 placebo session and 1 aspartate session. The placebo substance was sugarless Vitamin C powder. During each session VO_2, HR and RPE were meas. There were no sig diff between sessions. Lactate, amnonia, hematocrit, and hemoglobin were meas from blood samples drawn via venipuncture at rest, immediately after exercise, and 15, 30, and 60 min after exercise. Although there were sig diff between the immediate post-exercise values and the resting and 60 min post-exercise values for lactate and ammonia, there were no sig diff between the placebo and aspartate sessions. Some Ss, however, appeared to respond to the aspartate treatment. In conclusion, the results of this study suggest that aspartates are not effective in reducing indices of fatigue associated with wt training exercise or sig altering plasma ammonia concentrations.

BALL STATE UNIVERSITY **(S. Park)**
MUNCIE, INDIANA

4. AARON, L.R. Carbohydrate metabolism and aging. M.A. in Physical Education, 1987

It has been widely recognized that aging will cause a profound decrease in glucose tolerance and increase insulin resistance. These changes have been found to occur at a relatively early age. Narimiya (54), has documented these changes in younger rats and has shown alterations in glycogen metabolism to occur prior to nine mo of age. Exercise in the form of running has been shown to attenuate these changes. In Vivo glucose, insulin and muscle glycogen have interrelated functions. The role of muscle glycogen is to provide energy for the muscle's contractile process. Insulin is needed at rest to allow glucose to enter the muscle and be stored as glycogen. The purpose of this study is to pinpoint when changes in glycogen metabolism occur while looking at the influence of exercise and wt restriction on the process. M Sprague Dawley rats ages 1.5-4.0 mo were divided into 3 gps, control (CN), pairfed (PF), and exercise trained (ET). The ET cages were equipped with voluntary running wheels attached to an automatic counter. At 1.5 mo, a gp of controls were sacrificed and treated as the 4 mo animals described below. Following training the hindlimbs of CN, ET, and PF were surgically isolated and glucose uptake examined by perfusing with a bovine blood preparation, which contained insulin and glucose. Pre and post samples of the soleus, plantaris, and red and white vastus were removed and assayed for glycogen. The 1.5 mo CN had sig greater glucose uptake than any other gp for both the insulin and non-insulin infused gps. The ET has sig greater uptake than the 4 mo gps at 90 and 120 min in the insulin infused gp. In the 1.5 mo CN when insulin is not present all muscles will break down glycogen. When insulin is present, glycogen is used in all but the white vastus. In the 4 mo CN all muscles except the soleus break down glycogen. In the ET the glycogen breakdown pattern is similar regardless of whether insulin is present or not. In the PF, glycogen breakdown is depressed and decidedly different from the other treatment gps. There is an age dependent decrease in glucose tolerance and insulin resistance at or before 4 mo of age. Training prevented some of this loss but did not stop the decline. Wt restriction had a nominal, if any, benefit in reducing insulin resistance and raising glucose tolerance with aging.

5. AHN, B-J. Comparison of the dancing form of Korean and Japanese traditional dance: Their connotative motion. M.A. in Physical Education, 1988

The purpose of this study was to assist the promotion of the uniqueness and originality of Korean dance culture by comparing it to Japanese This study found that there were many common features in the historical background and social recognitions between Korean dance "Ipchoom" and Japanese dance "Kabuki." The conspicuous common feature was that in both, artists were from the lowest class of people. They were treated with contempt by the people who had the idea of being chosen people and they recognized the connotative motion of internal expression which suppresses the emotional rhythmic motion. This study also found very different facts about each dance. "Kabuki" dance became dramatized. The reason for the strong demand for dramatization was that the social class was composed of mercenary people and dramatic behavior was the best sedative and stimulant which calmed frustration and bad dreams. But, because the motion of Ipchoom was demanded by the aristocracy, was elegant and precise with mature and noble movement while kabuki dance gradually lost the original purity of dance.

6. BARTON, V.E. The effect of interscholastic volleyball competition on the self-esteem of juvenile delinquent females in a residential child care facility. M.A. in Physical Education, 1988

7. BROWN, R.G. The effect of progressive resistance strength training exercise on serum growth hormone and testosterone in young and elderly men. M.A. in Physical Education, 1989

The purpose of this study was to observe the response of serum hormones to a progressive resistance strength training prog. Basal levels of serum growth hormone and total testosterone were meas before and after a 12-wk strength training prog in 8 young M (mean age = 23 yr) and 13 elderly M (mean age = 63 yr). The response of growth hormone and testosterone to an acute bout of strength training exercise was also meas. Changes in lean body mass, %bf, fat wt, VO_2 max and girth meas were determined. Sessions were started with walking and static stretching exercises for the major muscle gps. This was followed by 45-60 min of isotonic strength training exercise which consisted of the leg-press, leg-extension, leg-curl, torso extension, bench-press, pull-down, pull-over, horizontal arm adduction, arm abduction, and modified sit-ups on an abdominal platform. Ss were told to increase wt at a station when they could successfully complete 3 sets of 10 reps at that station. At wk 2 and 12 of the study Ss were strength tested at the leg-press, leg-extension, and bench-press stations. Strength was meas as the most wt that could be lifted for 6 rep. Blood samples were drawn from an antecubital vein pre and post training, before, immediately following and 15 min after an exercise session. There was a sig increase ($p < 0.001$) in strength for both gps for the leg press, leg extension and bench press. However, the young gp was sig stronger ($p < 0.001$) than the elderly gp in both the pre and post test for all muscles meas. There was a sig increase ($p < 0.01$) in lean wt in the elderly gp which was correlated with increased strength on the leg press, leg extension and bench press on the post test. There was a sig increase ($p < 0.05$) in growth hormone for both gps in response to an acute bout of exercise on both the pre and post test with the rise being sig higher ($p < 0.025$) in the younger gp. The increased strength in the young gp correlated pos with increase serum growth hormone following an acute bout of exercise on the post test. There was no sig change in serum testosterone in response to an acute bout of exercise in either gp. Basal levels of growth hormone and testosterone did not change.

8. CAI, W. The relationship of managerial time and ALT-PE in preservice teachers of the gym and swim program at Ball State University. M.A. in Physical Education, 1988

The purpose of this study was to examine the relationship between managerial time and ALT-PE, and to examine the decision making process concerning management during interactive teaching of the preservice teachers in the Gym and Swim Prog sponsored by Ball State Univ. 2 methods were employed in this study to collect data on teacher classroom managerial behavior and student motor engagement ALT-PE. The ALT-PE instrument (Siendentop, Tousignant and Parker, 1982) was utilized to record the managerial time and the time spent on subject matter content (e.g., motor category). The ALT-PE system employed an interval recording technique allowing a 6-sec period of time for observation an equal amount of time to record the observed behavior. In addition, a brief self-report was admin immediately after each observed class to elicit teacher perceptions of classroom management and the impact of management decisions on ALT-PE. The results of this study indicate that effective classroom management (decrease of managerial time) can enhance effective teaching by means of increasing student ALT-PE, shortening student waiting time, and min student off-task behavior. For example, 4 of the instructors, in this study, spent less than 18% of the time on management, more than 30% of the time on ALT-PE, and only 3.2% or less on disruptive student behavior (off-task behavior). These findings suggested that there is a need to incorporate training about effective classroom management into preservice teacher preparation.

9. CAMERON, K.A. Effects of an aerobic movement program on cardiovascular fitness, body composition, and body-esteem on overweight children. M.A. in Physical Education, 1989

The purpose of this study was to determine the effects of a 10 wk aerobic mvmt prog for overweight children on cv fitness, body composition, and body-esteem. The Ss for the study consisted of 20 children (17 F and 3 M) ages 8-12. One gp (n=12) consisted of overweight children and one gp (n=8) consisted of ave wt children. Cv endurance was meas in sec with a 2 mile walk/jog in the school halls. Self-concept was meas with the Piers-Harris Children's Self-Concept Scale. Body-esteem was meas with Mendelson and White's Body-Esteem Scale. A 2x2 ANOVA was employed to determine sig of effect. Overweight and ave wt children were the independent variables. Self-esteem, body-esteem, and cv endurance were the DVs. Body composition (tricep skinfold meas) was used to distinguish the 2 gps and determine wt loss due to the prog. The ANOVA indicated no statistically sig improvements in cv endurance, self-esteem, and body-esteem in overweight children in comparison with average wt children after a 10 wk aerobic mvmt program.

10. COULTON, R.T. The current status of Ball State University football and basketball first-team, all conference award winners from 1955-1981. M.A. in Physical Education, 1987

11. CURLESS, B.D. Prophylactic and functional ankle braces effects on motor skills. M.A. in Physical Education, 1989.

In athletics the ankle is one of the most commonly injured body parts. Athletic trainers have used a woven cloth with an adhesive backing to restrict the motion of an injured ankle. This practice was generally accepted in the profession as the best way to guard against reinjury. During the recent yrs athletic tape has become very expensive and questioned by many researchers as to it's effectiveness. At present many ankle braces have been introduced to the market as a viable alternative to taping the ankle. Most of the research limited to an anal of rom provided by the ankle braces. The purpose of this study was to determine what effects ankle braces (Cramer Ankle Stabilizer, Peter's Active Ankle Brace, and the Air Cast) have on athletes in motor skills: IL Agility Test and standing long jump. The results of this study provides information on whether or not the use of prophylactic ankle braces has a detrimental effect on motor skills. 20 Earlham Coll athletes between the ages of 17 and 22 were recruited for this study. Ss were asked to wear one of the devices and perform each of the 2 motor skills tests. Ample time was allowed for each athlete to become familiar with ankle braces. The order of exp conditions and meas were counter balanced to prevent order effects. Each event was either timed to the nearest 1/10th sec or meas to the nearest cm. Each S performed the DVs without any ankle restriction which served as the control gp. The investigation of the data concluded that no statistical diff was found after completing a 1 way ANOVA. The only conclusion found was that the participants were slowest in the agility run with the Peter's Active Ankle. The opposite was found in the standing long jump where Ss jumped furthest with the Peter's brace. This was thought to be true due to the increased ability to plantar- and dorsi- flex the ankle.

12. ELDREDGE, P.A. Gender-labeling of physical activities elementary school children. M.A. in Physical Education, 1989

The purpose of this study was to determine the degree to which ele school students label physical activities according to gender. Participants for this study were 202 students grades 1 through 6 from a Muncie Comm School in Muncie, IN. Participants were divided by age and gender for the statistical anal. The students were asked to respond to the Physical Activity Stereotyping Index (PASI), a Lickert-type instrument designed to assess the degree to which individuals label selected activities according to gender. Results of the study suggested that children's perceptions about the gender appropriateness of physical activities be a function of age as evidence by higher scores for the older children. It appeared also that M gender-label physical activities to a greater extent than do F. Those findings suggested that as children widen their exp with social interactions, they adopt clearly-defined and gender-specific play patterns.

13. GAO, J. The influence of NaHCO3 ingestion on interval swimming: acid-base balance and performance. M.A. in Physical Education, 1987.

The purpose of this study was to investigate the influence of oral NaHCO3 admin on the alteration of acid-base balance and performance of high-intensity interval swimming. 10 M coll swimmers were studied on 5 test days within a 2 wk period. Each test day consisted of five 100-yd freestyle swims with a 2 min rest interval between each bout. Ss received 2 NaHCO3, 2 placebo and 1 no-drink treatments for the 5 test days. 1 hr before the onset of swimming the Ss were given 300 ml of citric acid flavored solution containing either NaCL (placebo) or NaHCO3 (exp), or received no drink. The dose of NaHCO3 solution was 0.25 g/kg-1 body wt. Before the sprint trial test a 300-yd warmup swimming was performed followed by a 9 min rest. Performance times for each 100-yd swim were recorded. Blood samples were obtained before and 1 hr after treatment, 2 min after warmup and the last bout of swim. Blood pH, lactate, standard bicarbonate (SBC) and base excess (BE) were meas. After the statistical anal had shown there were no diff between the corresponding values of 2 trials for the same treatment, the data for identical treatments combined and reanal statistically as 1 gp. All the corresponding variables between placebo and no-drink revealed no diff. Performance times of the fourth and fifth swimming bouts were faster ($P > 0.05$) and blood lactate after exercise was higher ($P < 0.05$) in NaHCO3 condition. Blood pH, SBC, BE were higher ($P < 0.05$) at post-treatment, post-warmup and post-bout of swim in NaHCO3 condition. The diff between NaHCO3 and the other 2 conditions on the increment of lactate (2.0 mM) was proportional to that on the decrement of SBC (2.2 meq/l) after exercise. The data from the placebo and NaHCO3 treatments shown a pos r between hydrogen ion and lactate concentrations ($r=0.923$) and a neg r between SBC and concentrations ($r = -0.941$) after warmup and exercise. These data are in agreement with previous findings that during repeated bouts of exercise pre-exercise admin of NaHCO3 improves performance, possibly by facilitating the efflux of lactate and hydrogen ions from working muscles and thereby delaying the onset of fatigue.

14. HARRIS, G.E. The effects of a seven week weight training program on leg strength in the elderly. M.A. in Physical Education, 1988

There seems to be many parameters that account for all falls associated with the elderly. In the first part of the elderly falls study, a sig diff in leg strength was found between Ss who have a history of falls and those who had no history of falls. Among the various correlates associated with falling, lack of strength has been identified as a strong predictor of falling. Therefore, the purpose of the present investigation was to assess whether a gp of elderly Ss could sig increase leg strength after engaging in a 7 wk strength training study. A total of 7 Ss between the ages 60 to 71 ($x = 64.8$) yrs of age were recruited for this study. A Cybex isokinetic leg press machine was used to assess pre and post-test strength values. Once pretesting was completed, the training intensity was based on 15% of each Ss lean bw.

Each training session required Ss to perform 4 sets of 15 rep on a Universal Leg Extension machine 3 times weekly. The statistical anal indicated a sig ($P < .05$) increase in leg strength. Thus the young, middle-aged and elderly, barring any health problems, can improve and possibly retard fall potential.

15. HE, X. The effect of ankle taping on female athletes' motor performance. M.A. in Physical Education, 1988

The purpose of this research paper was to examine the effect of ankle taping on F athletes' running speed and jumping ability. A total of 16 F athletes from Ball State Univ Intercoll Teams between the ages of 18-21 served as Ss in this study. The exp was conducted on 2 successive days, 1 day with ankle taping and the other day without ankle taping. The dv were the 40-m dash, 40-m zigzag running, standing vertical jump, standing long jump, and standing 5 step long jump. Prior to testing all Ss performed a 10-min warmup exercise. The dependent ± test and a minitab computer prog were used for statistical anal of the data. The ankle taping did not reduce the performance of running and long jumping sig. Only vertical jump was impaired sig by basketweave ankle taping treatment. The diff in motor performance with ankle taped was small and may not be great enough to impair actual sports participation. It is possible that the more the activities depend on plantar flexion of foot, the more the athlete is affected by taping treatment.

16. HU, J. The effect of contextual interference on a children's acquisition, transfer, and retention of a closed skill. M.A. in Physical Education, 1989

This study investigated the CI effect of diff practice schedule on acquisition, transfer, and retention of a closed skill in first-grade children. 48 Ss were randomly classified into 4 gps: random, blocked, random-blocked, and control. Children threw a weighted bean bag to a fixed target location. Each S performed 15 trials at the wts of 4, 5, and 6 oz for a total of 45 trials. After 5 min rest a transfer test using novel wts of 3 and 7 oz were given in a blocked order with 6 trials for each wt. Also, after 24 hr all Ss were given a retention test consisting of 9 trials at the same wts (4, 5, and 6 oz) in a random order. The order of the wts was counterbalanced within each gp. Results generally supported previous findings of the CI effects. The random-blocked gp performed better in both transfer and retention than the other 3 gps. Over all, the exp suggested that transfer and retention performance for children is enhanced by the using of a random-blocked structure of variable practice.

17. HUFHAND, D.L. Heart rate and RPE response to low-impact aerobic dance with and without wrist weights. M.A. in Physical Education, 1988

The purpose of this investigation was to identify the HR and RPE responses associated with low-impact aerobic dance exercise with and without wrist wts. Each S completed a max treadmill test, and two low-impact aerobic dance trials, one with 1 pound wrist wts and one without the wrist wts. The low-impact aerobic dance routine included 3 five-min segments which increased in tempo from 116 to 148 bpm. Gp m and SD were calculated for HR and RPE responses at each music tempo with and without wrist wts. ANOVA for repeated meas was utilized to compare HR and RPE data between the wrist wts and without wrist wts trials. For all comparisons, statistical sig was set at the 0.05 level. For the 116 bpm tempo, there was no sig diff between wrist wts and no wrist wts trials for HR (138.0 ± 16.7 vs 1 ± 22.2 bpm) or RPE (8.1 ± 1.8 vs 8.7 ± 1.8). At the

148 bpm, no diff were noted between trials for HR (155.8 ± 14.7 vs 158.9 ± 20.9), but the RPE data was sig diff (12.2 ± 2.4 vs 12.8 ± 2.0). The results of this study demonstrate that the addition of 1 pound wrist wts to low-impact aerobic dance exercise does not sig alter HR responses, although higher tempos can affect RPE responses.

18. JHANG, S-E. An analysis of basic construction variables of racing wheelchairs in the 1988 Seoul Olympic Games for the disables. M.A. in Physical Education, 1988

The purpose of the study was to identify the characteristics of the 1988 competitive wheelchair, to determine the relationship between the selected wheelchair characteristics and speed, and to determine the relationship between selected wheelchair characteristics and distance. The 10 wheelchair Ss used in this study were elite track and field athletes who competed in the 1988 Seoul Olympic games for the Disabled. List variables were as follows: (a) front wheel diameter, (b) front wheel tire size, (c) front wheel axle length, (d) mainwheel diameter (e) mainwheel axle length, (f) handrim diameter, (g) mainwheel tire size, (h) top of the horizontal distance, (i) bottom of the horizontal distance, (j) front wheel axle to mainwheel axle distance, (k) vertical displacement, (l) sitting width, (m) axle to axle length, and (n) chair wt. The wheelchairs were photographed and physically meas in order to characterize the wheelchair construction variables. The statistical anal included m, SD, and ANOVA calculations via the Minitab Statistical prog. There were several sig diff (P < .05) between the chairs in the classification of speed and the level of success. The following variables were found to diff sig with respect to speed: (a) front wheel diameter, (b) sitting seat width, (c) bottom of the mainwheel horizontal, (d) top horizontal distance of the mainwheel, and (e) vertical displacement the seat.

The characteristics of chairs used in short distances were compared to the chair's characteristics used in long distances. The following chair variables were found to diff sig ($P < 0.05$) between the long distance gp and short distance gp: (a) front wheel diameter, (b) top horizontal distance of the mainwheel, (c) axle to axle length, (d) sitting seat width, and (e) wheelchair wt. The wheelchair design appeared to affect both the wheelchair distance and speed.

19. KIM, T-W. A study on the injuries of soccer players. M.A. in Physical Education, 1987

20. LAHLUM, J.R. Development of an exercise manual for obese adolescents. M.A. in Physical Education, 1988

21. LeBLANC, D.N. Analysis and comparison of operative goals of intercollegiate athletics programs as perceived by athletic administrators in the Mid-American Conference. M.A. in Physical Education, 1988

Over the past decade the field of athletics has experienced rapid growth and change, underscoring the need for updating knowledge about effective admin of these prog. The purpose of the present study was to investigate the operative goals of intercoll athletics prog by the athletic admin in the Mid-American Conference located in the states of IN, MI, and OH. The Ss utilized in the study were M athletic admin, F directors, and their associate/assistant directors from the Mid-American Conference. The study focuses on the admins perceptions of the operative goals of intercoll athletics prog which include: (1) Entertainment; (2) National Sport Dev; (3) Finances; (4) Transmission of Culture; (5) Career Opportunities; (6) Public Relations; (7) Athlete's Personal Growth; (8) Pres-tige, and (9) Achieve Excellence (Chelladurai, 1983). The Scale of Athletic

Priorities Questionnaire (S.A.P.), developed by Chelladurai, Danylchuk, and Inglis (1984), was admin to the ADs, F directors and their associate/assistant directors by mail with instructions explaining the study, the procedure to fill out the questionnaire, and where to send the questionnaire back to the researchers by the specified date.

22. LEE, K-L. Effects of Athletic Participation on Educational Aspiration. M.A. in Physical Education, 1989

23. LEWIS, J.P. A comparative biomechanical analysis involving the use of track spikes and racing flats for distance competition. M.A. in Physical Education, 1988

This study was designed to meas the biomechanical changes that would occur between the use of track spikes and racing flats for a distance running pace of app 10 min for 2 miles. A total of 3 Ball State Univ students served as Ss for the study. They were filmed while running paced trials in both spikes and flats for an app distance of 50 m. The Ss were timed during the last 15 yards after they had built up speed to target pace. The trials that were close to target pace and to each other were used for anal of the biomechanical parameters of stride length and stride frequency, support and nonsupport time, the angle of the lower leg at takeoff and the velocity angle of the center of gravity at takeoff. Results indicated that the velocity of the center of gravity showed sig diff between the use of the 2 shoe types when computed using statistical tests on the m. It was concluded that within the limitations of this study track spikes could serve as an additional avenue of biomechanical improvement, due to increased velocity, and that a diff in running performance can occur without the intervention of a coach or a purposeful change in technique on the part of the runner.

24. NEWCOMER, L. Dietary intake and iron deficiency in college age female distance runners. M.A. in Physical Education, 1988

The purpose of this study was to determine whether adherence to a modified vegetarian diet predisposed young F athletes to iron deficiency. 2 gps of F distance runners volunteered to be Ss for this study. 1 gp consisted of F who regularly consumed red meat, and the other gp F who consumed a modified vegetarian diet. 3 day dietary records were anal to estimate nutrient intake, including available iron. Meas of serum ferritin, serum iron, total iron binding capacity, percent transferrin saturation, hemoglobin and hematocrit were done to assess iron status. The 2 gps did not differ in the amt of total iron or available iron in their diets. The red meat eating Ss consumed sig more heme iron from their diets than the modified vegetarians; however there were no diff between the gps in any of the meas of hematological or iron status. While there were no diff between the 2 gps in the percent of Ss classified in each stage, 37% of all of the Ss were classified as having a stage 1 deficiency, associated iron deficient stores, and 11% of the Ss were classified as having a stage 2 deficiency, indicating iron deficient erythropoiesis. None of the Ss were anemic. The results indicate that adherence to a modified vegetarian diet in this age gp did not increase risk of iron deficiency.

25. PAN, W. Contextual interference of beginners learning an open motor skill. M.A. in Physical Education, 1987

Most of the research on CI effects have found that non-repetitive practice (random) as compared to repetitive practice (blocked) facilitates learning. However, when the classification of the task (open/closed) and the entry level of the Ss (beginner/advanced) are considered, the results are not consistent with previous findings. Apparently, a beginner in learning an open skill does not benefit from random practice as in a closed skill. The purpose of this study was to investigate the CI effect of diff practice sched on the learning of an open motor skill by beginners. 6 gps were used in the study: random, blocked, random-blocked, blocked-random, random-blocked-random and and blocked-random-blocked. The task required the Ss to push a telegraph key to coincide with the arrival of lights with diff speeds to the end of the runway of a Bassin anticipation timer. Results revealed that low CI (block practice sched) is an indispensable prerequisite of gaining benefits from high CI effect (random practice sched) for beginners learning motor skills. Neither pure block or random practice sched seemed to benefit the novice learning an open motor skill.

26. PARK, S.H. Protein nutritional status of adolescent wrestlers during periods of weight reduction. Ph.D. in Physical Education, 1988

The purpose of this investigation was to examine the seasonal change in the nutritional protein status of adolescent wrestlers who lost wt for competition. Additionally, this study determined if changes in plasma proteins and amino acids would be prevented through nutritional educ and dietary supplementation. 27 adolescent wrestlers (14.8 - 18.1 yr) were divided into 2 gps for study during a 3 month period. 1 gp received a nutritional educ and supplement program, the other gp served as a control. Ht, wt, percent bf, and free fat wt were meas during wrestling season. Venous blood samples were drawn and anal for essential (E) and nonessential plasma amino acids, hemoglobin (Hb), hematocrit (Hct), retinol-binding protein (RBP), prealbumin (PA), albumin (AL), and blood urea nitrogen (BUN). Four, 4-day dietary records taken during the season were anal for protein, carbohydrate, and total calories. The results demonstrated that wt, % bf, and fat free wt decreased sig during the exp period ($P < 0.001$), with no sig diff between treatment and control gps. The blood RBP and PA decreased sig during the exp period ($P < 0.01$), whereas AL did not change. Most of the amino acids did not show sig decreases during the exp period whereas the total essential amino acids showed a decreasing trend ($P < 0.05$), the total nonessential amino acids did not change. The Ss, ave caloric intake showed sig decreases during the exp period ($P < 0.001$). The wrestlers failed to meet the RDA for energy and protein intake. It was concluded that nutritional status of adolescent wrestlers appears to be diminished as a result of wt loss during the season.

27. SEIMER, M.A. An office based preventive cardiology practice. M.A. in Physical Education, 1988

The purpose of this project was to design and implement the Cardiology Consultants Preventive Cardiology Practice for the comm of Fort Wayne, IN. Lit was reviewed and interviews were conducted to determine the course of events for the establishment of this office based preventive cardiology practice, hereafter referred to as the "Practice." The logistics of the Practice include the following: objectives; pro design; staffing and training; facilities and equipment; insurance and safety; promotion and public relations; and cost anal. The Practice is a joint effort among a gp of 5 cardiologists, 2 exercise physiologists, 1 registered dietitian, several CV nursing specialists and an office staff of medical personnel. Many individuals both physically active and sedentary are interested in knowing if they are at an increased risk for heart disease. This Practice was established to not only provide sound preventive care for the cardiac patient, but to also evaluate and guide the apparently healthy individual through a safe and effective wellness lifestyle. The cardiologists provide the Practice with the ultimate evaluation of heart function. The exercise physiologists provide exercise instruction, healthy role models as well as directing daily operations. The dietitian provides nutritional instruction and the nursing staff assists with many of the screenings and intervention classes. The preventive cardiology aspects of Cardiology Consultants were established in May of 1986 to compliment the clinical cardiology practice. This new Practice is responsible for providing the following: Cardiac Rehabilitation Phase II and beyond, a Comm Adult Fitness/Wellness Program, Corporate Wellness Consultations, a Lipid Clinic, CV fit evaluations and screenings, and related wellness intervention classes.

28. STOCKHAM, D.K. *Status and legality of athletic codes in selected high schools in the state of Indiana*. M.A. in Physical Education, 1988

29. TAYLOR, M. *Physiological adaptations observed in middle-aged females following a 12-16 week aerobic conditioning program*. M.A. in Physical Education, 1988

The purpose of this investigation was to quantify the physiologic changes, in middle-aged (43.2 ± 10.6 years) F, associated with participation in an aerobic conditioning prog. Evaluation of these F (N = 192) occurred during the period of 1973 to 1987. The conditioning prog consisted of vigorous aerobic exercise (walk, walk-jog, aerobic dance) at an intensity of 70-85% max HR reserve, 4 times per wk, for 12 to 16 wks. Variables anal were bw, % bf (%FAT), max HR (HRmax), max ventilation (VE), resting HR (RHR), VO_2max (VO_2max), DBP (DBP), SBP (SBP), total chol (TC), triglycerides (TRG), high-density lipoprotein chol (HDL-C) and glucose (GLU). Pre and post training data were anal using an ANOVA with repeated meas. The alpha level was set at ($p < 0.05$ level of sig. Sig decreases were noted for

WT (2.3%), %FAT (7.7%), DBP (4.0%), SBP (3.1%), RHR (7.4%), TRG (7.6%), and TC (2.6%). Sig increases were noted in HDL-C (3.2%), VO_2max (ml/kg/min, 18.0% and VE (16.6%). No changes were noted in HRmax and GLU. These data suggest that short term (3-4 mo) aerobic conditioning of middle-aged F can result in sig improvements of the parameters used as meas of physical fitness.

30. ZENDONG, E. Aggressiveness as related to basketball performance. M.A. in Physical Education, 1987

The purpose of this study was to examine the aggressiveness of Ball State Univ basketball players in relation to fouling, stealing the ball and rebounding behaviors. 12 individuals were selected on the basis of participation in the 27 games of the 1986-87 regular basketball season. The Ss were coll M ave 20.25 yr in age, 6.46 ft in ht and 195 lb in wt. The study included the completion of the 16 PF Questionnaire Test to isolate the aggressiveness characteristic. The tests were scored and the standard values on aggressiveness were correlated with the annual game statistics on fouls, steals and rebounds. The standard scores on aggressiveness were also correlated with the fouling, stealing and rebounding behaviors per playing time. A high pos r (.736, $P < .01$) was found between the Ss' aggressiveness and the fouling behavior. Moderate r (.595 and .577, $P < .05$) were discovered between the Ss' aggressiveness, stealing and rebounding behaviors. On the other hand, the fouls and rebounds collected per playing time correlated low and neg with the aggressiveness standard scores (-.354 and -.333, $P > .05$). The results of this study have led the investigator to conclude that the personality trait of aggressiveness does not strongly favor the stealing and rebounding behaviors which may be dependent upon some other factors. However, aggressiveness seems to be an important factor in the phenomenon of fouling. In addition, the amount of time spent on the court appears to influence the relationship between fouls and aggressiveness, steals and aggressiveness, rebounds and aggressiveness.

CALIFORNIA STATE UNIVERSITY **(J.BOSCO)**
SACRAMENTO, CALIFORNIA

31. ROBERTS, S.O. Systolic blood pressure versus heart rate to predict steady-state oxygen uptake in male cyclists. M.S. in Exercise Physiology, 1988, 131 p. (W.A. Bynum)

The accuracy of the max HR and max SBP reserve method to predict training HR (THR) and training SBP (TSBP) that corresponded to 25, 50 and 75% of peak O_2 consumption (POC) was studied in 12 well-trained M cyclists (M=26.67 yr). Each S performed a graded max bicycle ergometry exercise test (T1), and two submax tests (T2 and T3). During T2 and T3, Ss pedalled at individually determined power outputs corresponding to 25, 50 and 75% of their POC. T2 and T3 were continuous tests with 3 min adjustment periods at the start and between stages, and 5 min collection periods at each intensity (steady-state). M actual HR's were compared to m THR's and a range of (r=.64) to (r=.79 was found. M THR's underestimated actual steady-state O_2 consumption (SSOC) at all 3 intensities by a range of .43% to 6.5% (all $P < .05$). Actual SBP was then compared to TSBP and a range of (r=.47) to (r=.78) was found. M TSBP's underestimated SSOC by a range of .4% to a high of 2.61%, and overestimated SSOC by .15% in one test (all $P > .05$). This study found SBP to be more accurate in predicting SSOC than HR based on smaller percent diff and greater non-sig diff between TSBP, actual SBP and SSOC versus THR, actual HR and SSOC.

CENTRAL MISSOURI STATE UNIVERSITY (M. LYON)
WARRENSBURG, MISSOURI

32. JOHNSON, C.L. A comparison between two training techniques for developing shoulder girdle strength in untrained college women. M.S. in Physical Education, 1988, 64 p. (B.J. Bailey)

Untrained coll F volunteers (n=57) were randomly assigned to 2 gps. The control gp performed 4 sets of 6 rep max on the flat free wt bench press. The exp gp performed 4 sets of rep to failure while performing knee push-ups, full push-ups, or a combination of both. 5 other exercises were includ-ed in the workouts. All Ss worked out 3 days a wk for 6 wk. Each workout lasted app 30 min. Shoulder girdle strength was determined by cable tensiometer tests of shoulder flexion and elbow extension. ANCOVA indicated that the 2 training techniques were equally effective in increasing shoulder flexion and elbow extension strength (P .05). The combined gps showed a sig improvement in elbow extension strength (F=4.90). The F of 4.03 was borderline sig (F .05 = 4.08) for improvement in shoulder flexion strength.

COLUMBIA UNIVERSITY (J. HIGGINS)
NEW YORK, NEW YORK

33. CARPINELLI, R.N. The acute effects of miometric and pliometric muscle actions on delayed onset muscle soreness, hemodynamic responses, and exercise performance.

Delayed onset muscle soreness (DOMS) is often attributed to pliometric muscle actions. However, researchers have usually had force or work confounded with muscle actions. This study compared miometric muscle actions (MMA) and pliometric muscle actions (PMA) of the quadriceps in untrained F, both with force constant and with higher forces during PMAs. GP 80/80 (n=12) performed 3 sets of MMA-only (shortening muscle action) knee extensions until fatigue alternated with 3 sets of contralateral PMA-only (lengthening muscle action) exercise with a similar resistance (80% 1RM) for the same no of rep. The 80/120 gp (n=12) followed the identical MMA protocol, but used 120% 1RM to the point of fatigue for the PMAs. Ss returned app 48 hr after the initial exercise session to attempt to repeat or surpass their initial performance. DOMS in gp 80/80 was sig higher following MMAs compared with PMAs at 24 ($P < 0.05$) and 48 ($P < 0.01$) hr post-exercise. HR ($P < 0.001$), SBP ($P < 0.01$), DBP ($P < 0.01$) and RPP ($P < 0.001$) were higher during MMAs compared with PMAs. Gp 80/120 reported higher ($P < 0.01$) DOMS following PMAs 24, 48, and 72 hr post exercise. HR was higher ($P < 0.05$) during MMAs, but there were no sig diff in SBP, DBP, or RPP between muscle actions. There was no sig diff in the no of rep performed between the initial and 48 hr exercise sessions in either gp. These data suggest that PMAs per se do not induce greater DOMS when similar resistances are employed. However, higher resistive forces, or higher exercise intensities, or both, do result in greater DOMS. The lower hemodynamic responses during PMAs suggest that pliometric exercise should be considered for those persons who wish to exercise their skeletal muscles with min elevations in HR and BP.

34. DiVICO, P.C. The objectivity and reproducibility of the lactate and ventilatory breakpoints. Ed.D. in Physical Education, 1989 (B.Gutin)

This dissertation consists of 2 studies. Study 1 examined the objectivity provided by a 4 min incremental exercise protocol for lactate breakpoint (LB) and ventilatory breakpoint (VB) determination using independent double-blind rater review. LB was determined from a marked increase in venous blood lactate concentration (LAV) for 9 adult M. VB was determined from a nonlinear increase in VE/VO_2. Venous blood samples were taken during the last 30 sec of each 4 min work rate (WR). Ventilatory parameters were calculated every 30 sec and as a summary of the last min of each WR. Inter-rater agreement for LB correlated at r=0.98. When based on the summary data calculated for the last min of each WR, inter-rater agreement for VB correlated at r=0.92. When based on data calculated every 30 sec, there were sig diff among the raters for VB determination (P = < 0.001). Study 2 examined the test-retest reliability of the LB and VB as well as the influence of blood sample site on LB determination. 10 adult M completed 2 exercise tests using the same protocol described for study 1. Arterialized capillary lactate LAC and LAV were determined from blood samples drawn during the last 30 sec of each WR. VB was determined from ventilatory response data calculated as a summary of the last min of each WR. There were sig diff between LAC and LAV on each test. There were no sig diff in lactate responses for a given site between tests. Inter-rater agreement for LB correlated at r=0.92. Test-retest reliability for WR and VO_2 at LBC were r=0.87, 0.91. Test-retest reliability for WR and VO_2 at LBV were r=0.60, 0.75. WR at LBC and LBV correlated at r=0.59, 0.69 for tests 1 and 2. VO_2 at LBC and LBV correlated at r=0.69, 0.77 for tests 1 and 2. Inter-rater agreement for VB correlated at r=0.98, 0.90 for tests 1 and 2. Test-retest reliability of WR and VO_2 at VB correlated at r=0.21, 0.30. Thus the day to day repeatability of the LB for a given sample site appears acceptable. However, there are sample site dependent diff for LB determinations. The VB is not a reliably reproducible parameter when using independent rater review.

35. DOURIS, P.D. Acute physiological responses to speed-specific isokinetic exercise.

The purpose of this study was to meas the acute physiological responses to speed-specific isokinetic exercise elucidate the role of lactate and potassium accumulation during muscular work and their effect on local muscle fatigue, and to investigate the underlying physiological mechanisms behind the CV responses to isokinetic exercise. 10 experienced wt trainers (age 20-40 yr) took part in a repeated meas design consisting of 3 separate treatments (30, 120, and 300°/sec performed max for 1 min by the right knee flexors and extensors on an isokinetic dynamometer). BP, HR, RPP, lactate (LA), plasma potassium (K+), muscle fatigue (MFI), total peak torque (TPT), total peak power (TPP), total work (TW), and RPE were meas in response to each treatment. There were no sig diff between the 3 treatments on increasing SBP and DBP, although peak treatment SBP for all 3 treatments were above 188 mmHg which was of sig clinical importance. The 300°/sec treatment was sig diff ($P <.05$) than the 30°/sec on increasing HR and RPP. The accumulation of K+ was not physiologically or statistically sig for all 3 treatments, possibly due to methodological errors. There was a sig ($P <.01$) incremental in LA and MFI from 30°/sec to 300°/sec. A within Ss r ($r=.82$, $P < .01$) revealed a pos relationship between LA and MFI. Although there were sig diff between the treatments on HR, RPP, LA, MFI, the Ss RPE were similar across all 3 treatments. It appears that Borg's RPE scale (1-10) may not be appropriate for use during short term anaerobic exercise. The results of this investigation reveal that speed of mvmt is an important variable that should not be overlooked when studying the acute effects of resistive exercise. The data strongly suggest that the magnitude of the HR response, RPP response, LA, and muscle fatigue is strongly dependent on the speed of mvmt utilized during max isokinetic exercise.

36. MUKESHI, M. *Validation of the Caltrac movement sensor*. Ed.D. in Applied Physiology, 1989

This dissertation consisted of 2 validation studies of the Caltrac. The first study done with 2-3 yr old children, investigated the relationship of the Caltrac scores when programed with each individual's biodata (CAL-BIO) to energy expenditure (EE) estimated by a precise and objective direct observation DO technique. The second validation study done with adults (10 M and 10 F) compared the Caltrac scores when programed with constants (CAL-MU) and CAL-BIO to the VO_2 derived scores obtained during 7 habitual activities. In the first study, CAL-BIO and EE estimated by DO exhibited a modest r (r=o.62). However, since bw and biodata factors (BDF) accounted for the largest proportion of variance in the DO and Caltrac scores respectively, when bw and BDF were controlled for, the overall r declined from 0.62 to 0.25. Therefore, these results suggest that in young children, the Caltrac, when programed with biodata, does not provide much information about EE levels in children beyond that attributable to bw. In the second study, the Caltrac score in M overestimated sitting EE by 43%, and walking and running EE by 16%-27%. In contrast, F Caltrac scores were within 6% of the VO_2 values. In activities involving large vertical accelerations, such as grade walking and bench stepping, the Caltrac underestimated EE by 32-49% in both genders. All the r obtained between CAL-BIO, CAL-MU and the respective VO_2 values in both genders were highly sig. No sig diff was found between the CAL-BIO and CAL-MU r, therefore both programming methods may be used to assess PA. However, examination of the absolute values reveal that in M, the CAL-BIO scores for sitting, walking and running were overestimated. In addition, EE in both genders during activities with a large vertical component was underestimated. Therefore, in M and young children, further exp is necessary to refine the Caltrac. In F however, the Caltrac has good potential as an epidemiologic tool to assess EE although corrections for participation in activities that involve large vertical accelerations is necessary.

DALHOUSIE UNIVERSITY, (C. PUTNAM)
HALIFAX, NOVA SCOTIA

37. HALE, S. Dynamic analysis of the above-knee amputee swing phase during free speed walking under varying prosthetic conditions.
M.Sc. in Physical Education, 1988

The general trend in prosthetic designs has been toward lightweight prostheses. However, exp evidence that prostheses that are closer to the inertial parameters of the sound limb results in more normal swing patterns, and a favorable response by the amputee. The purpose of this study was to determine the effect of prosthetic leg mass on the swing phase kinematics and kinetics of free speed walking of above-knee (A/K) amputees. 6 unilateral A/K amputees, using the same type of prosthesis were filmed walking at a self selected speed under 3 load conditions. The load conditions were: 1) load 0, unweighted prosthetic leg (m 39.1% of sound leg mass), 2) load 1, 75% sound leg mass, and 3) load 2, 100% sound leg mass. 3 trials per S per load condition were anal. The lower limb was modelled as 2 rigid segments, the thigh and prosthetic leg. Newtonian equations of motion were used to determine the resultant joint moments (RJMs) about the hip and prosthetic knee, and the interactive moments acting on the thigh and prosthetic leg. The walking speeds, stride velocities, stride times, stride lengths and swing times were not sig diff across loads. The joint and segment angular kinematic patterns were similar, but appeared to diff in the magnitudes and times of occurrence of their peaks. The swing phase was divided into 4 phases based on the direction of the hip RJM curve. Only in section 4 was there a sig diff ($P < =.05$) in the section duration. There were sig diff in the magnitudes of the angular impulses of moments acting on the leg and thigh in sections 2, 3, and 4. The muscular effort (hip RJM impulse) sig increased in sections 3 and 4, and for the total swing phase. The A/K amputee learned to use the thigh motion, to which the hip RJM contributes, to control the prosthetic knee because of an insufficient knee RJM. Despite increases in the prosthetic mass leg up to 100% of the sound leg mass, the A/K amputee was still able to maintain a consistent walking speed, with a 71.3% increase in the hip muscular effort. This increase was primarily due to sig increases in the hip flexor and extensor RJM impulses during the latter half of the swing, the periods associated with leg deceleration. Despite the increase in the hip muscular effort, 4 of the 6 Ss preferred the load 1 condition (75% sound leg mass). This preference may have been influenced by the Ss familiarity with the load condition that most closely app their regular prosthesis.

38. HOUSTON, A.W. The effects of an endurance swimming program on serum lipids and lipoproteins in men. M.Sc. in Kinesiology, 1988

The effects of an endurance swimming prog on serum lipid and lipoprotein levels in M was investigated. Ss were divided into 3 gps: control (n=6), 30 min swim gp (n=9) and a 45 min swim gp (n=7). Ss trained 3 days per wk, for 12 wk within a predetermined HR target zone based on age and resting HR. Front crawl was the predominant stroke used for work. Blood samples for lipid and lipoprotein profiles were taken before, during and after training to ascertain any changes or trends from upper body exercise. There were no sig changes in any of the lipid or lipoprotein levels. Resting HR of the S30 and S45 gps decreased sig ($\underline{P} < .05$). It appears that upper body work of an endurance nature did not provide sufficient stimulus to alter HDL-C values after 12 wk of training. The magnitude of the trained muscle mass and total energy expenditure over a long period of time may be critical factors in improving lipid and lipoprotein levels.

39. MacKINNON, L. The effects of a computer-awareness program on nurses' anxiety levels. M.A. in Health, 1988 (J. McCabe)

The introduction of patient-information systems into health care agencies is in its infancy in Canada. At present less than 5% of nurses are using computers to manage patient information. It is while so few nurses are using systems that the potential stressor of the computer must be recognized and attempts made to assist nurses in dealing with this innovation. This research study meas the effect of a computer-awareness prog on nurses' anxiety levels and found a sig decrease among those nurses who attended. A summative evaluation of the prog was completed by the participants and provided valuable fb to include in the overall evaluation of the prog. Nurses also identified concerns and expectations they had about the use of computers in nursing. This qualitative data outlined the areas with which nurses are most concerned and those that should be addressed in future educ prog.

40. MacKINNON, S.N. Muscle-tendon unit length and electromyographic variations of the triceps surae complex during graded treadmill running. M.Sc. in Kinesiology, 1988

The purpose of this study was to quantify the changes in muscle function of the triceps surae complex across 3 grades (-10%, 0% and +10% slope) of treadmill running. 4 Ss were filmed and simultaneous EMG profiles of their gastrocnemius and soleus muscles were recorded for 6 support phases at each running grade. Selected muscle-tendon (m-t) unit length and EMG variables were used to describe the muscle function. A repeated meas ANOVA was used to test for changes in these variables across running grades. A general pattern of muscle action, described as sequences of concentric, eccentric, and concentric action periods, were found for each muscle. Sig alterations of the soleus m-t length variables were found across the diff grades. Of most interest was the increase in the working range of the muscle as the Ss progressed downhill to level to uphill running. Changes in the gastrocnemius muscle function across grades was a result of changes in the levels of EMG of the muscle. This result probably indicates the importance of the stretch-shorten cycle in the adaptation of the gastrocnemius function across the diff conditions. Evidence presented in this study suggests diff in the changes in function of the gastrocnemius and soleus across conditions. These diff might be attributed to the number of joints a muscle crosses.

41. MATHEWS, M. *The nature and status of health-promotion programs in Nova Scotian goods producing industries*. M.A. in Health, 1988 (R.Lyons)

The purposes of this study were to determine the nature and extent of health-promotion prog in Nova Scotian (N.S.) goods-producing industries and to identify the factors related to the implementation of corporate pro. Prior to this study, data concerning health-promotion prog in N.S. goods producing industries were not available. Thus, this study served to fill an information gap. The data can serve as a baseline against which the progress of health promotion in N.S. goods-producing industries can be meas. In addition, the results allow N.S. health-promotion efforts to be compared with other industrial sectors. The PRECEDE framework and a corporate health-promotion model, adapted from Kolbe's (1985) school HE model, formed the foundation of this study. A stratified random sample of 300 N.S. goods-producing industries was selected to participate in this study. A survey, developed for this study, was mailed to the firms after validity and reliability checks were conducted. A 74% response rate was achieved. This study identified 3 main factors that were pos related to the implementation of corporate-health-promotion pro; the size of the firm, the employment of occupational health personnel, and the CEO's personal commitment to health promotion. This study did not confirm relationships between the perceived success of the firm and the presence of prog. A relationship between the documentation of the corporate impact of ill health and the presence of prog was not confirmed. Occupational health/ safety were offered by the majority (81%) of firms. Annual social/rec prog (73%), and healthy environment activities (78%) followed closely behind. On going rec/social prog were less popular (43%). Alcohol/drug educ prog were offered by 35% of firms. Smoking cessation, fitness, back care/ fitness, hypertension control, EAP nutrition/weight control, retirement planning prog were offered by fewer than 30% of firms. Only 13% of firms offered stress management prog. More than 50% of firms with health-promotion prog had implemented them with the belief that the prog could contribute to reductions in accident and absenteeism rates, and improvements in well-being, productivity, and morale. Inadequate facilities and personnel, employee and management's lack of interest, shift schedules, and financial constraints appear to be the main barriers to the implementation of corporate health-promotion prog within N.S. goods-producing industries. The findings of this study suggest that if the corporate-wellness mvmt is to gain momentum, both employee and employer awareness must be raised. They must gain an intimate understanding of the personal and corporate effects of health-promotion prog. The findings of research projects must be disseminated to the business community and new projects documenting the cost-effectiveness and impact of corporate prog must be launched. Programming and marketing strategies that address the barriers blocking the dev of prog must also be developed. Planners should focus on the creation of flexible comm-based, corporate-health-promotion models that can be adopted by a wide variety of firms.

42. MYERS, A. The enhancement of containment theory variables through the application of an adventure based experiential learning program. M.S. in Physical Education, 1988 (A.Richards)

Four basic assumptions in this study are: 1) Delinquency the result of the absence of a working control mechanism; 2) The control mechanism is pos influenced by the enhancement of inner containment variables of self concept, goal or orientation, frustration tolerance and retention of norms; 3) Leisure time experiences of youth represent an important social environment which may both reflect and influence the current state of mind with regard to these variables; 4) It is possible to design leisure opportunities which provide for the enhancement of inner containment. Activities which were characterized by increased responsibility for one's own actions, increased control over one's own environment and opportunities for altruistic behaviour were considered to be appropriate. The effectiveness of the activities is tempered by the individual's level of involvement in the activity and his/her ability to generalize knowledge gained. A treatment prog adapted from the principles of adventure based experiential learning was undertaken and its effect on inner containment variables was meas within a quasi-exp design. Results of the treatment were inconclusive. Some qualitative data indicated limited enhanced levels of containment. Statistical data did not support this conclusion. The lack of a definitive outcome was attributed to two variables: 1) The treatment lacked the power to produce a meas effect; and 2) Research into establishing the effectiveness of interventions which prevent and empower is in its infancy and results are difficult to verify.

43. PELHAM, T.W. Comparison of a twelve week aerobic vs anaerobic training program on mood of psychiatric outpatients. M.Sc. in Kinesiology, 1988

In a combined single subject-comparative gp design, 6 M and 5 F psychiatric outpatients completed surgical tubing exercises (3 F, 3 M) or cycled on a stationary bike (2 F, 3 M) 4 sessions per wk for 20 to 30 min over a 12 wk training period. As supported by Doyne et al. (1983), Martinsen et al. (1985) and Mutric, (1988) the study found sig CV improvements (predicted MVO2) in the aerobic gp, with a concurrent reduction in depression (BDI scores) in community based psychiatric outpatients. Single-S time-series anal showed members of the aerobic gp reported comparatively greater pos mood changes than individuals in the anaerobic group based on percentage changes in the Beck Depression Inventory, Derogatis Affect Balance Scale, Mental Health Inventory-General Well-Being Scale and Profile of Mood States from baseline to wk 12. Single S key word anal of structured interviews demonstrated that the 5 Ss who completed the aerobic and 4 Ss completing the anaerobic training perceived their exercise treatment as useful and beneficial. When activity levels and mood alterations were compared no trends were established. In summary, the results suggest that aerobic fitness not activity level was responsible for mood changes in psychiatric outpatients and anaerobic exercise was beneficial in other areas. Moreover, a pos attitude and past experience with exercise, or sport were identified as key factors in exercise adherence.

44. PLASSE, K.M. A formative evaluation of the Mainland South Prenatal Program in Halifax, Nova Scotia. M.A. in Health, 1989 (S.Shaw)

The purpose of this formative evaluation was to examine the process of implementing the Mainland South Prenatal Program and the features that contributed to its success in attracting a socially high-risk population of single expectant F. This prog attracted 97 participants during its first 26 mos of operation. Almost all of the F were single, with the exception of 2 who were recently separated and 2 married teenagers. Approximately 45% of the participants were in their teens, and 81% were receiving social assistance. The design of this study was based on Green and Lewis's (1986) model of a formative evaluation that provides fb on the following 5 targets: program implementation, site response, recipient response, practitioner response, and competencies of personnel. The study examined these 5 targets and found that the Mainland South Prenatal Program met the following 3 criteria for success: 1) The prog included the 4 features cited in the lit for a successful prog for socially high-risk F: a comprehensive comm service; services to meet the physical needs of the participants; services to meet the emotional needs of the participants; and professionals who can establish rapport with the participants; 2) The prog came close to meeting its original goal "to combine the efforts of several human service organizations to provide support and educ to at least 60% of the single expectant F in Mainland South;" 3) The prog was perceived pos by all of the professionals, recipients, and practitioners who were interviewed. This formative evaluation examined many of the factors that led to the prog's success in attracting this "hard to reach" population. The study concluded that many features may contribute to the success of a prenatal prog for single expectant F, however, the most important one is the attitude of the instructor toward the participants. Potential users may compare this detailed data base with their own situation and decide if the information is transferable. This formative evaluation provides prog model and practical guidelines that may be used by other communities to implement a prenatal prog for socially high-risk single F.

45. PLATH, S.M. Demographic profile of individuals obtaining pregnancy termination and its application for planning contraceptive education programming. M.A. in Health, 1988 (A. Young)

This market-identification study was conducted to investigate the demographic characteristics of abortion patients that diff them from the general population. The study was conducted under the framework of the PRECEDE Model, as modified by Bonaguro and Miaoulis (1983) to incorporate a marketing approach to educ diagnosis. An exicting data base, developed by the local Planned Parenthood and the Victoria General Hospital, was used. This data set consisted of the responses to a questionnaire of the 3,490 residents of Halifax County who obtained abortions during the 4 yrs, 1983-1986. Descriptive statistics were used to anal the data and determine relative risk ratios compared to the population of F County residents in the same age gp as the study population. Demographic variables that were found to be strong predictors of gp inclusion were age, marital status, residence and family income. Student status and employment status were less strongly predictive. Religion was not found to have any predictive value. The typical patient was single, between the ages of 20-24, resident near the metropolitan core of the city, and poor. On the basis of the findings of the study, programming suggestions were made for the purpose of developing services to increase the impact of preventive education and lower the incidence of abortion. Target gps for prog included students at post-secondary institutions, non-students aged 18-24, teens, post-abortion patients, media and govt decision-makers. The need for more family planning services was also identified.

46. RYAN, D. Kinematic variables as predictors of performance in the basketball free-throw. M.Sc. in Kinesiology, 1988 (S.Holt)

The purpose of this study was to test the hypothesis that kinematic factors (predictor variables) could sig account for variance in shooting accuracy among players of wide ranging abilities in the basketball free - throw. 67 Ss of varying skill levels from beginning basketball players to former Olympians and NBA draft choices were initially pretested to determine their shooting accuracy. From the Ss pretested, 25 right handed M Ss were selected on the basis of free-throw percentage of accuracy ranging from 30% to 100%. The data were derived by means of a cinematographical anal and manual digitizing from overhead, frontal and sagittal perspectives. Stepwise multiple regression anal was applied to the data testing 60% of the Ss and cross validating on the remaining 40%. Of the 27 predictors tested the following predictors accounted for 84% of the vari-ance in accuracy: 1) More accurate shooters demonstrated slight backward (vertical) lean of the trunk from the horizontal (93 to 100°) at the ready position; 2) More accurate shooters positioned the long axis of their feet within a range of 14 to 18°); 3) More accurate shooters utilized a greater degree of right foot segment elevation from the floor. This study has led to increased knowledge of the kinematics which are critical to accurate free-throw shooting. They should also help to facilitate the teaching and acquisition of free-throw shooting.

EASTERN KENTUCKY UNIVERSITY **(H.Z.Holmes)**
RICHMOND, KENTUCKY

47. ROAN, S.A. A comparison of the American Red Cross and Young Men's Christian Association teaching methods for beginning swimming. Ed.S in Physical Education (1987) (D.L.Kirkpatrick)

ILLINOIS STATE UNIVERSITY **(R.Koehler)**
NORMAL, ILLINOIS

48. GEYER, B. B. The effects of a prescribed motor skill developmental program on static balance, dynamic balance, and jumping abilities of preschool children. M.S. in Physical Education, 1988 (P. Dohrmann)

Fifteen 4 and 5 yr old preschool children from a univ lab school participated in this study. The exp gp consisted of 8 Ss who participated in a 6 wk, 3 day a wk, 10 min a day structured motor skill dev prog. The control gp did not participate in any structured motor skill dev prog, but did take part in a 6 wk, 3 day a wk, 10 min a day structured play period. Pre and post assessments were conducted for static balance, dynamic balance, jumping distance, and level of performance of the standing long jump to determine if there was an improvement as a result of the prog. A 2-way ANOVA with repeated meas of static balance, dynamic balance, jumping distance, jumping level test scores resulted in sig F-ratio for the exp and control gp. For 3 of the 4 skills tested, the exp gp improved sig. The results of the anal for dynamic balance indicated both gps improved sig. The investigator feels this could be due to the low no. of Ss and the low discriminating power of the test.

INDIANA UNIVERSITY **(W.F.Updyke)**
BLOOMINGTON, INDIANA

49. ARNDT, S.K. Adolescent alcohol consumption and a changing legal drinking age. H.S.D. in School Health Education. 1988 (D.L.Ludwig)

Adolescent alcohol consumption was determined by anal of responses of seventh, ninth, and twelfth graders to an anonymous, confidential survey distributed in 21 schools in 2 states (n=5,973). One state (FL) had recently raised its drinking age, grandfathering those who were currently drinking. The other (IN) with a drinking age of 21 served as a comparison. The responses were tabulated and frequency tables constructed. A quantity-frequency index (QF Index) was derived. Anal of the data was performed using x^2 and sig was set at the .05 level of probability. A sig decrease in the percentage of alcohol users was found among FL seventh and twelfth graders, and in the IN survey population as a whole. No sig diff was found in the FL survey population. Sig decreases in those using alcohol within the past wk and mo were found in both states when considering the total populations. FL twelfth graders showed sig decreases in those using alcohol within the last wk, mo, and yr. Results indicate that fewer adolescents are using alcohol, that legal restriction of alcohol consumption by age has variable effects over diff adolescent age gps, and that legal restriction by age is a deterrent in certain age gps.

50. BOOKHISER, J.K. *Research and development of a system to track behaviors of individuals with autism or other severe handicaps and interfering behaviors*. Re.D., 1989. 183 p. (S.K. Shuster)

A research utilization model that translated Research and Dev procedures into applications in the social sciences was employed to develop a Behavior Tracking System (BTS) used to monitor and anal behaviors of persons with autism or severe handicaps and interfering behaviors. The system was designed to be employed by professional staff members across disciplines including special educ, therapeutic rec, and PE. The lit was reviewed which resulted in the formulation of precepts that provided a conceptual framework for a solution model. The solution model was translated into the BTS prototype which was piloted and field tested over a 4 yr period in variant settings serving the target population. Pilot and field testing resulted in refinements and enhancements to the BTS. Application of the BTS revealed that enhancements were made to professional decision making, as well as the systems employed by professionals to eval-uate and impact upon behaviors. It was further demonstrated that communication between service providing professionals and other professionals was facilitated and use of the system aided in the process of meeting behavioral goals and objectives.

51. CHUNG, C.S Three-dimensional analysis of the shoulder and elbow joints during the volleyball spike. Ph.D in Physical Education, 1988 (J.Dapena)

The kinematic and kinetic parameters of the spiking arm during the arm swing phase of the volleyball spike were investigated using 3 dimensional film anal for 8 F intercoll volleyball players, to understand the patterns of motion of the striking arm and the muscular activities responsible for it. During the arm swing phase, the Ss had forward and lateral somersaulting angular momentum, and no twisting angular momentum. Angular momentum was conserved by rotating the legs in opposition to the right arm. The external rotation of the upper arm was caused indirectly by the shoulder muscles that rotated the arm about an axis perpendicular to the upper arm and contained in the plane of the arm. The internal rotation muscles acted to prevent excessive external rotation. During the forward swing phase, the shoulder muscles acted to cause a forward somersaulting motion of the upper arm, as well as internal rotation. The elbow extension muscles acted to swing the forearm forward, in elbow extension. The varus torque exerted by bone-on-bone forces at the elbow acted to restrict the valgus rotation. During the forward swing phase, the arm motion of some Ss was dominated by elbow extension, while internal rotation at the shoulder was the dominant motion in the others.

52. COLLINS, M.E. Body figure perceptions and preferences among preadolescent children.
H.S.D. in Health and Safety, 1989, 175 P.
(J.R. Seffrin)

The problem of this study was to determine and compare body figure perceptions and preferences among preadolescent children, grades 1 through 3. A cross-sectional survey was conducted with 1,118 M and F, black and white children in 7 purposively selected public ELE schools in IN. A pictorial instrument was dev, reviewed, pilot tested, and tested for reliability and validity. Ss used the instrument to indicate perceptions of their own body figures and preferences for ideal figures in children and adults. ANOVA and t-tests were used to test hypotheses related to diff in figure selections by gender, grade, race, and school/comm setting. Though M and F selected similar current figures as self, F selected sig thinner figures as ideal self than M selected. F also selected thinner ideal adult figures than M selected. Blacks chose heavier figures than whites; however, preferences for thinner figures occurred among F of both races. Preferences for thinner figures among F occurred across all levels of wt, age, race, and school/comm setting. These results suggest that the onset of disparate figure perceptions and expectations regarding thinness among F may be evident as early as 6 and 7 yr of age.

53. HARRIS, A. Gastrointestinal transit time during passive hyperthermia. Ph.D. in Human Performance, 1988, 160 p. (B.J.Martin and J.M.Stager)

The Ss were 12 healthy untrained M. Each S underwent 2 treatments of supination in water, once under baseline temp and the other with core temp elevated by 1.2°C. After the establishment of H_2 baseline, the S was given 0.7 gm Lactulose per 1 Kg bw (Chronulac, Merrill Dow), mixed with 240 ml liquid meal (Sustacal, Mead Johnson). Orocecal transit time was defined as a consistent rise in H_2 concentration in the rebreathing system (at least 2 ppm). Meas also included metabolic data, rectal temp and Hematocrit. A 15 ml blood sample was taken from an antecubital vein immediately after the arrival of the Lactulose bolus into the cecum. Gastrin, cortisol and motilin concentrations were anal using radioimmunoassay techniques. Diff between the 2 conditions were determined using a two-tailed t-test,1 with sig regarded at $P < 0.05$. Serum motilin, gastrin and cortisol, and orocecal transit time of the liquid meal were not sig diff between the normothermic and hyperthermic conditions. Hyperthermia did elevate HR and min ventilation but not VO_2. Conclusion: passively raising core temp to the same extent as mild exercise does not alter mouth to cecum transit of at least the first portion of a liquid meal.

54. HASHIM, T.J. A health knowledge test for male college freshmen in Saudi Arabia. H.S.D. 1988 (J.R.Seffrin)

The problem of the study was to construct a valid and reliable instrument to meas the HE knowledge of M freshmen coll students in Saudi Arabia. Content for the instrument was derived from information contained in required HE science textbooks used in HS and from American HE knowledge tests. Items were prepared in English, then translated into Arabic. Steps included in the process were dev of a table of specifications, construction of test items, formulation of specific instructions for test admin, and statistical anal of the HE knowledge items. An initial compilation of 160 items arranged in 10 content areas was submitted for review to a jury of Saudi and American experts in HE. Based on jury suggestions, a preliminary instrument was prepared and admin to 200 Ss at Um Al-Qura Univ in Saudi Arabia. Subsequently, a revised instrument was prepared and admin to 1500

Ss at King Saud and King Abdul-Aziz Univ in Saudi Arabia. Anal included item anal, reliability estimation and descriptive statistics, as well as factor anal.

55. HESTON, M.L. Influence of inhabiting level and skill proficiency on satisfaction, involvement, and affective expression in eight, nine and ten year old boys in a sport game setting. Ph.D. in Human Performance, 1989, 176 p. (D.L.Gallahue)

36 eight yr old, 36 nine yr old, and 36 ten yr old M were assessed on a throw for distance and accuracy task, and classified as low, medium, or high proficiency players. Stratified random assignment was then used to create age-constant teams consisting of 1 low, 1 medium, and 1 high proficiency player. Randomly paired age-constant teams then competed under conditions of overinhabiting, adequate inhabiting, and underinhabiting. Inhabiting level was manipulated by varying the no of active roles within modified versions of Keep-away in relation to the no of players on a team. During each game, a trained observer assessed each child's level of involvement and affective expression several times. After the children had participated in all 3 games, relative satisfaction with each game was assessed by questionnaire. Underinhabiting generally elicited higher levels of satisfaction and involvement, and more pos affective expression than did either adequate or over inhabiting. Few diff were found between the effects of these latter 2 inhabiting levels. In addition, proficiency level was found to interact with inhabiting level on the DV of satisfaction. Specifically, low proficiency M found underinhabiting to be more satisfying than adequate inhabiting, but not than overinhabiting. Medium proficiency M considered both under and adequate inhabiting to be more satisfying than overinhabiting, and high proficiency found underinhabiting to be more satisfying

than either adequate or overinhabiting. These findings indicate that underinhabited youth sport settings may result in a variety of pos outcomes for young athletes, including higher rates of participation, greater enjoyment, and perhaps, lower rates of attrition.

56. JORDAN, D.F. An examination of gender differences in perceptions of outdoor leaders by Colorado Outward Bound pre-registrants. Re.D. in Recreation and Park Administration, 1988, 228 p. (R.V.Russell)

2 questionnaires were adminis to 147 F and M pre-registrants of 1988 CO Outward Bound School summer courses. 1 instrument elicited gender role information about the respondents. The other instrument asked participants to read written descriptions of 4 hypothetical outdoor leaders and respond to questions regarding leader competency. Gender of leader and levels of competency were varied in the descriptions. All Ss expressed a preference for a M outdoor leader. M participants exhibited stereotypical responses to the dependent meas coping with personality clashes, getting along with participants and teaching outdoor cooking; F participants rated outdoor leaders according to actual levels of competence rather than gender of leader. Sorting respondents by gender role typology resulted in some stereotypical responses. This sorting resulted in several DVs not being distinguished on the basis of competence although competency levels were varied. Results demonstrated that M were more stereotypic in their responses than were F. With pre-registrants of 1988 CO Outward Bound School summer courses competence, rather than gender of leader, was the distinguishing factor.

57. KATTER, H.M. Construction of an instrument for identifying intentional determinants of selected behaviors related to sexually trans-

mitted diseases (STD). H.S.D., 1988, 170 p. (Ruth Engs)

899 patients attending the Bell Flower STD Clinic in Indianapolis, IN and 137 patients attending the Combined Health District of Montgomery County's STD Clinic in Dayton, OH completed the constructed 22 item questionnaire. Through various statistical anal the instrument demonstrated evidence of being somewhat valid and reliable for the meas of intentional determinants of the 2 STD behaviors investigated. The index of content validity was quantified at 0.68. Reliability of repeated trials revealed no sig diff between the 2 sample m for 9 of the 12 determinants. The known groupstechnique for construct validity displayed the greatest discrimination among the adult F. For structural dimensionality, the previously estimated 6 determinants were retained as factors. A high Cronbach's alpha reliability suggested intercorrelations of the 22 items. High reliability through intraclass r of the test-retest procedure demonstrated no sig diff in the original and the repeated responses to the instrument. The split-half reliability, among the odd and even items, and Spearman-Brown prophecy formula resulted in a high level of assoc. A low r was determined for concurrent validity, which compared the contact-investigators' subjective judgements and the patients' compliance. When utilized as an assessment tool in the clinical setting, the speculated value would be the questionnaire's assistance in directing educ toward those areas of information that would prove most useful to the individual patient.

58. KOCEJA, D. Examination of segmental reflexes in endurance-trained and untrained subjects. Ph.D. in Human Performance, 1989, 507 p.

24 Ss (12/gp) were tested using a conditioning reflex protocol, utilizing intervals of 10, 25, 40,

55, 70, 85, 100, 115, 130, and 145 msec between the conditioning stimulus and the test reflex. Specifically, the patellar tendon-tap reflex (PTR), the Achilles tendon-tap reflex (ATR) and the tibial nerve Hoffmann (H-reflex) reflexes were examined in this study. 9 exper treatments were admin to each S on 5 test days. The exper treatments included conditioning the test reflex with a prior tendon-tap and/or tibial nerve H-reflex stimulus. For each treatment, 3 trials were admin at each of the conditioning intervals, and 3 unilateral control trials were also admin. The following dependent meas were examined: peak isometric force, isometric impulse, contraction time, force latency, EMG latency, electromechanical delay, peak to peak EMG activity, integrated EMG activity and half-relaxation time. Sig ($P < .05$) between-gps diff were noted for the unilateral PTR, but not for the ATR or the H-reflex. A conditioning stimulus caused changes in the dependent meas for all exper conditions, and the recovery profiles between the gps were diff. It was concluded that exercise affects the integration of segmental reflexes in humans.

59. McGOWAN, M.L. Order of perceived risk intensity task relevance as program factors influencing locus of control in adventure recreation. Re.D., 1989, 73 p.

11 M and 46 F coll students (average age 22.43) were randomly assigned to 1 of 6 sequences of rec activities. Included were tree identification, dutch oven cooking, fire building, rappelling, low ropes course, canoeing, intermediate ropes course, and high ropes course. Sequences were arranged according to decreasing, increasing or constant low intensities of perceived risk and task or non-task relevance in order to gauge the effectiveness of order of perceived risk intensity and task relevance as prog factors influencing S beliefs concerning the control of reinforcement. Support

behaviors of activity leaders to Ss during the exp were limited to simple words and phrases. Ss completed the I-E scale at the conclusion of treatment and activity leaders were debriefed concerning S reaction to the respective sequences of activity. ANOVA between gp I-E scores indicated no sig diff between gps regarding beliefs concerning reinforcement. Activity leader reports varied between gps regarding gp support behaviors and levels of enjoyment regarding participation. Results of study indicate that duration of treatment may be a factor contributing to prog effectiveness and that order of perceived risk and task relevance appear to affect S enjoyment and may facilitate occurrence of spontaneous S to S gp support behaviors.

60. STEINBRECHER, J.A. Freshman participation related to the academic achievement of male intercollegiate student-athletes. P.E.D. in Sports Administration, 1989, 127 p. (M.L.Remley)

The problem of the investigation was to anal the effect of M intercoll student-athletes playing or not playing as freshmen in varsity intercoll competition. Ss for the investigation were student-athletes participating in basketball and football at 8 Big Ten Conference institutions who initially matriculated in 1980-81, 1981-82, 1982-83. A discriminant function anal was performed to examine the variables which contributed to the grad rate of student-athletes. A multiple regression anal was performed to examine the freshman GPA of student-athletes. It was found that playing or not playing as a freshman student-athlete had no sig role in whether the student-athlete graduated. Playing or not playing in varsity competition as a freshman also had no sig effect on the freshman GPA of the student-athlete. Standardized coll entrance examinations were found to predict who will grad or not grad equally well for black as well as non-black student-athletes. It was concluded that participating or not participating in varsity intercoll athletics competition as a freshmen did not affect the grad rate or freshman GPA of student-athletes.

61. SZYMANSKI, D.J. Hardiness and burnout in the staff of summer residence camps. Re.D. in Recreation and Park Administration, 1989 , 160 p. (D.R.Austin)

Staff (130 F and 87 M) at 4 camps serving non-disabled persons, and 3 camps serving persons with disabilities completed a demographic questionnaire and the Personality Hardiness Scale (PHS). 5 wk later, staff completed the Maslach Burnout Inventory (MBI). Pearson Product Moment r tested relationships between demographic variables, PHS subscales: challenge, commitment, and control, and MBI subscales: emotional exhaustion, personal accomplishment, and depersonalization. Multiple regression anal examined predicting burnout from hardiness scores and demographic variables. To examine diff, t-tests were performed. Inverse relationships between hardiness and burnout were found. Emotional exhaustion, personal accomplishment, and depersonalization were associated with hardiness and demographic values. The subscales of the PHS and MBI were related, were statistically sig, and were in predicted directions (as hardiness increased, emotional exhaustion and depersonalization decreased, and personal accom-plishment increased, and vice-versa). Among the variables, diff were found between camps, and between F and M. Assessing hardiness provides a moderately effective means of predicting which staff may burnout. Hardy persons exhibit less emotional exhaustion, more personal accomplishment, and less depersonalization than persons with lower hardiness scores.

62. TURNER, P.E. Physical practice, mental imagery, and relaxation, related to motor

skill acquisition. M.Sc. in Physical Education, 1989

This investigation examined the effects of mental imagery, relaxation, and physical practice on tracking skill acquisition. The influence of the independent variables, alone and in combination, was assessed on a 30-sec pursuit rotor task using the nondominant hand. 8 F undergrad at Indiana Univ were assigned to conditions of diff combinations of physical practice, mental imagery, relaxation, and control. Each S received fifteen 30-sec trials of exp task performance, and each trial was separated by a 30-sec rest period. Ss in the physical practice conditions completed five 30-sec trials of the exp task prior to the actual testing sessions. The mental imagery gps received 15 30-sec trials of imagery of the criterion task. Ss in the relaxation gps were taught to relax prior to the exp sessions. The physical practice-mental imagery Ss received five 30-sec physical practice trials, followed by ten 30-sec mental imagery sessions. Time on target was grouped into 5 blocks of 3 consecutive trials for anal. Data were analyzed a 2x2x2x5 factorial model. A sig (P < .05) practice main effect was found, with the physical practice gp outperforming the no physical practice gp. A physical practice-mental imagery interaction effect (P < .05) also occurred, with the physical practice-mental imagery gp outperforming no physical practice-mental imagery gp. A trial block main effect (P < .05) was found, with performance on block 2 being superior to that of block 1, and block 5 performance being greater than that of all other blocks. Finally, a physical practice by block interaction (P < .05) occurred, with physical practice Ss outperforming the no physical practice subjects on each block. It was concluded that prior physical practice alone facilitated learning of pursuit rotor target tracking, physical practice and mental imagery combined was an effective method of motor skill acquisition. Relaxation training, alone or coupled with physical practice and/or mental imagery did not affect motor skill acquisition.

63. WASILAK, J.M. Training at various velocities on the biokinetic swim bench, related to three-dimensional hand speed patterns of the front crawl stroke. P.E.D. in Physical Education, 1988, 217 p. (J.E.Counsilman)

24 M (18-22 yr) coll students were randomly assigned into 1 of 4 treatment gps. The first gp trained at a fast velocity, the second gp trained at a slow velocity, the third gp alternated fast and slow, and the fourth gp was a control gp. The training lasted for 11 wk and included 32 total workouts. The Ss were filmed at the beginning and at the conclusion of the study. Hand and body displacements, velocities, and accelerations were obtained through a digitizing process. Ave body velocity, resultant hand-speed peaks, and hand velocity peaks were anal using an ANOVA with a repeated design. Results demonstrated ave body velocity improved ($P < 0.01$) with the gp that was more explosive and trained at a fast rate. The same gp improved ($0.01 < P\ 0.05$) on, 1) ave hand speed; 2) the first peak of the resultant hand-speed curve; 3) the third velocity peak in the X direction n($P < 0.01$). No statistical diff were found with the other gps in the same variables. The gp that was more explosive and trained at a slow rate exp a decrease in the second velocity peak in the X direction.

64. WENOS, D.L. Exercise intensity and experimental effects on the ratings of perceived exertion of women 60 to 75 years old. P.E.D. in Physical Education, 1989, 250 p. (P.R.Surburg)

Any variance in RPE based on an interaction between the substantive independent variable (IV) of exercise intensity and the type of exp design has not previously been established. 24 apparently healthy F (65 ± 3.8 yr of age) exercised to volitional max (m VO_2 max = 23.5 ± 3.1 ml/KG/min) using a progressive walking treadmill protocol. Relative exercise intensities of 30%, 50% and 70% of VO_2 max were performed for three 5 min work bouts over 3 test days by each F. Ss were randomly assigned to either a within-Ss design (6 Ss) or to 1 of 3 between-Ss design (6 Ss each). The Erlebacher (1977) modified ANOVA was utilized to combine segments of both exp designs into a single 3x2 (Exercise Intensity Design) factorial design. Sig diff were found in RPE due to the Exercise Intensity by Design interaction. Overall, the within-Ss design yielded higher RPE than the corresponding between-Ss design. It was concluded when a range or multiple-exercise intensities are available for reference during a series of exercise bouts, F 60 to 75 yr of age accurately estimate exertion.

KENT STATE UNIVERSITY **(D.T.Deutsch)**
KENT, OHIO

65. FENDER, L.K. Athletic burnout: A sport adaptation of the Maslach Burnout Inventory. M.A. in Physical Education, 1988, 127 p. (R.E.Stadulis).

The term burnout, used in the context of sport and athletics, appears common. Many athletes report a loss of interest in their sport, or evidence decreased performance, and often attribute these to being "burned out." However, an instrument meas burnout specific to the athletic environment appears unavailable. The present study attempted to begin the dev of a reliable and valid instrument to meas athlete burnout. An existing burnout inventory, the Maslach Burnout Inventory (Maslach & Jackson, 1981), was modified for the sport situation. Once content validity was evident to a jury of experts, this Sport Adaptation of the Maslach

Burnout Inventory (the SAMBI) was admin to intercoll football, wrestling, and ice hockey athletes (n=51). Internal and external reliability was evidenced. Factor anal validated the 3 subscale approach to meas burnout, i.e., separate factors of emotional exhaustion, depersonalization, and personal accomplishment were generated. However, the burnout factor structure was identifiable using but 12 of the original 22 MBI items. Variables hypothesized to relate to athletic burnout evidenced relationship to the SAMBI responses. In particular, the first and second string athletes on the team's depth chart evidenced greater burnout than the reserve players, thus adding additional support for the SAMBI's validity.

LOUISIANA TECH UNIVERSITY **(B.J.Talton)**
RUSTON, LOUISIANA

66. REDMOND, E.L. The relationship between job satisfaction and predicted VO_2 max values of Caucasian women employed in sedentary jobs. M.Sc. in Education, 1988

This research investigated the relationship between job satisfaction and fit levels in Caucasian F. Ss were employed in non-acd and/or non-admin positions by LA Tech Univ for a min of 6 mo (n=30: age 18-34 yr). The YMCA Submax Bicycle Ergometer test was utilized with a Monarck Bicycle Ergometer to predict VO_2 max values. Predicted VO_2 max values were meas in ml/kg/min to produce fit scores. The Job Descriptive Index (JDI) was utilized to meas job satisfaction levels. A Pearson Product Moment r was computed to determine the relationship between the JDI scores and the predicted VO_2 max (ml/kg/min values. Results indicated a nonsig relationship between the two [$r(30) = -.19, P < .05$].

67. WIESEN, K.L. The effects of winning or losing one softball game on the perceptions of team cohesion in female high school and collegiate

softball teams in north central Louisiana. M.Sc. in Education, 1988

Members of 7 F varsity HS softball teams (n=66) and 2 F varsity coll softball teams (n=24) completed pre and postgame questionnaires to determine the immediate effects of winning/losing on perceptions of cohesion. A 2x2 doubly multivariate ANOVA yielded no sig main effects for winning or losing, or time. The interaction was also not sig. A second doubly multivariate anal using schools and time as grouping factors confirmed the first anal, finding no sig main effects for time; however, sig main effects for schools were demonstrated. A post hoc discriminant anal revealed that attraction to gp task, and gp integration factors appeared to differ between schools. The results suggested that perceptions of cohesion are not influenced by winning or losing one softball game.

McMASTER UNIVERSITY (J.Stares)
HAMILTON, ONTARIO

68. HASLAM, D.R.S Weightlifting training in cardiac exercise rehabilitation. M.Sc. in Human Biodynamics, 1988, 177 p (N. McCartney)

The purpose of this thesis investigation was to evaluate the effectiveness of dynamic strength training as an additional mode of exercise rehabilitation, in patients with coronary artery disease and well documented evidence of a previous myocardial infarction. The effects of 10 wk (20 sessions) of combined weightlifting and aerobic training (WtAer) (n=10) were compared with aerobic training (Aer) (n=8) alone, on indices of strength and aerobic exercise capacity in 18 M patients with coronary artery disease (CAD). Initial test(s) performance was similar between gps. Post Aer, the max weightlifting strength (1RM) in single-arm curl, single-leg press, and single-knee extension exercises increased by 13% (m=11.8 to 13.3 kg; P<

0.01), 4% (m=97 to 101 kg; N.S.), and 5% (m=28.2 to 29.7 kg; N.S.) respectively; corresponding gains with AerWt were 43% (m=12.2 to 17.4 kg; $P < 0.01$), 21% (m=99 to 120 kg; $P < 0.01$), and 24% (m=29 to 36 kg; $P < 0.01$). Following Aer the initial 1RM could be lifted an average of 4 times, compared to 14 times after AerWt. Neither Aer nor AerWt showed sig improvements in peak torque in either isokinetic single-knee extension at 90^{o}/s and 180^{o}/s or single-leg press exercise at 30^{o}/s and 75^{o}/s. Max progressive incremental cycle ergometer performance (Wmax) increased by 2% with Aer (m=1088 to 1113 kpm/min; N.S.) and by 15% (m=1030 to 1180 kpm/min; $P < 0.05$) with AerWt. Cycling time at 80% of initial Wmax before attaining a Borg RPE of 7 for the legs, increased by 11% (M=604 to 672s; N.S.) and by 109% (m=541 to 1128s; $P < 0.05$) with Aer and AerWt respectively. In these patients with CAD, AerWt was a more effective method of increasing aerobic performance and strength than Aer alone. In order for cardiac exercise rehabilitation therapy to optimize the strength and functional capacities of CAD patients it may be useful to incorporate appropriately monitored weightlifting training into the traditional aerobic exercise regimen.

MIAMI UNIVERSITY **(H.A.Lawson)**
OXFORD, OHIO

69. GEORGE, T.R. Mental preparation strategies and peak performance among intercollegiate baseball players: An exploratory study. M.S. in Sport Studies, 1988, 151 p. (R.S.Vealey)

Inductive content anal was used to examine the types and functions of mental preparation strategies employed by Intercoll baseball players. A secondary purpose of the study was to investigate athletes' perceptions of peak performance. Data were obtained from 10 intercoll baseball players using in-depth interviews supplemented by follow-up rating scales. A variety of strategies were employed by athletes, with particular emphasis on the use of imagery, self-talk, and rituals. Athletes also reported that a variety of functions were served by these strategies. However, the attainment of a sense of control over performance appeared to be the overriding function of all mental preparation strategies. Finally, some of the findings of this study suggest that athletes' perceptions of peak performance may be both position- and sport-specific.

70. SINCLAIR, D. The effect of coaches' expectations and feedback on athletes' self-perceptions. M.A. in Physical Education. 1987, 88 p. (R.S. Vealey)

This investigation was designed to examine if coaches' expectations regarding athletes' performance abilities affect coach fb communications and, in turn, influence athletes, self-perceptions. The coaches of 3 elite provincial F field hockey teams were asked to rank their athletes to determine high and low expectancy at pre, mid, and postseason. The fb communications of these coaches were then recorded and categorized across the season to determine if diff fb was given to high and low expectancy athletes. In addition, the athletes (n=41), ranging in age from 15 to 23 yr, were admin questionnaires designed to assess changes in self-perceptions over the competitive season. The self perceptions meas in the study were perceived competence, self-esteem, and sport-confidence. A multi-variate trend ($p < .07$) emerged with regard to diff between high and low expectancy athletes in relation to the type of coaching communications they received. Specifically, high expectancy athletes received more evaluative and specific fb than low expectancy athletes. Low expectancy athletes, however, received more prescriptive fb than high expectancy athletes. Finally, sport-confidence was the only self-perception found to change over the course of the season and the timing of fb proved to be the only sig predictor of this change. The expectancy effects found in the study are discussed in relation to the context of elite sport.

MICHIGAN STATE UNIVERSITY **(W.Huesner)**
EAST LANSING, MICHIGAN

71. EVANS, S.A. A biomechanical and physiological evaluation of fatigue in distance running. (V.D.Ulibarri)

The purpose of this study was to examine the process of fatigue in distance runners. 5 trained, M runners comprised the sample for this study. Initially. each S participated in a continuous, incremental treadmill run to exhaustion. Expired gases were collected and anal for O_2 and CO_2 concentrations. The purpose of this treadmill run was to obtain values of the ventilatory equivalent for VO_2 (VE/VO_2). The (VE/VO_2) values obtained from this test were plotted against treadmill velocity. The points where the slope of the graph changed were labeled ventilatory breakpoint 1 and ventilatory breakpoint 2, respectively. Treadmill velocities corresponding to the ventilatory breakpoints were then determined. Velocities of 0.13m/sec above and below each breakpoint were calculated for each S. Each S ran 4, thirty min, constant velocity runs (A, 1B, 2B, C) at their predetermined velocities. Standard cinematographic techniques were utilized to obtain film data from the 4 runs. Filming occurred periodically throughout all runs. Data reduction occurred via digitization. Segmental kinetic energy meas were calculated and utilized in MANCOVA procedures to evaluate changes in bilateral kinetic energy meas of the thigh and shank at left foot strike, left midstance, left toeoff, right foot strike, right midstance and right toeoff. Findings included that while controlling for velocity, diff occurred be- tween runs and also between trials within the runs. As a runner fatigued, there was an initial decrease in the magnitudes of the bilateral thigh and shank kinetic energies followed by erratic increases and decreases in kinetic energy values especially during the later trials in the 2B and C runs. More variability in kinetic energy values was evident in the swing phase than the support phase. The variability in the swing phase may be due to each runner's attempt to maintain running at the constant treadmill velocity as each S fatigued. In conclusion, the changes found in kinetic energy values was indicative of inefficient movements due to the onset of fatigue.

72. FITZGERALD, C.R. Relationship between RPE and physiological measures of exercise: A meta-analysis.

The purpose of this review was to determine how the relationship between RPE and selected physiological meas during exercise is modified by variables such as exercise mode and S age. 23 studies using Pearson r to compare RPE with physiological meas were changed to z scores using the Fisher z transformation. A test of homogeneity of r for specific RPE-physiological meas relationships determined whether the r gps were more varied than would be expected from sampling variability. Sig excess variation was found for the RPE HR relationship. To find what study features modified this relationship, ANOVA-like comparisons were used. Results indicated that 4 study feature groupings yielded sig results both between and within study feature classes. These results implied that multiple study features influence the strength of the relationship between RPE and HR.

73. LARKINS, C. A biomechanical analysis of the single arm versus the parallel double arm takeoffs in the triple jump. (V.D.Ulibarri)

This dissertation investigated the effects of the single arm and double arm swing on triple jump performance. It also compared the performances of this study's novice triple jumpers to published findings for elite M triple jumpers. 7 F interscholastic track and field athletes who had no previous training in the triple jump were used as Ss for this study. They were matched on their best long jump distance and then randomly assigned to either a single arm or a double arm gp. Training methods were developed by the researcher in order to teach the Ss to triple jump using the assigned arm style. Four LOCAM 16 mm motion picture cameras were used to collect the data. 3 cameras recorded a sagittal view of the performance while a fourth camera recorded a frontal view. The film images were digitized and these data were used in conjunction with a FORTRAN program to determine takeoff velocities and ave support forces from the sagittal views. Balance data for each support phase were obtained by manual techniques from the frontal view. This study found that there was no statistically sig diff at the .10 level of sig between the single arm and double arm gps for any of the intervening variables under consideration with the exception of support times and horizontal takeoff forces. The findings for support times revealed that the hop and jump support times were similar for both gps. The double arm gp's step duration, however, was considerably longer. This gave the double arm gp greater horizontal and vertical impulses, an advantage during the most diff step phase. More notable was the statistically sig diff between phase distances (F(2,6 = 49.44, P < .001). The medium-short-long pattern used by all jumpers in this study resembled the Polish style. The Ss' m jump distance, however, far exceeded any reported findings for elite Polish style triple jumpers. The novices may have resorted to the Polish style because they were not able to rebound from the stress of landing from a long hop. This may indicate that phase contributions may be a function of the jumper's strength, speed, and skill level.

74. VanHEEST, J.L. The effects of hand cooling during strenuous exercise of metabolic and cardiorespiratory function.

Cardiorespiratory and metabolic responses to hand cooling were investigated in 9 M trained endurance runners. Ss were exercised twice on a treadmill, each time for 30 min at 80-85% of VO_2max and carrying room temper hand held wt. At min 10 and 20 of each run the room wt were exchanged for either a second pair of room temp wts or a set of cold (-1 -2°, C) wts for 2 min. The results indicated that hand cooling had a sig ($P < .05$) effect on HR and respiratory exchange ratio but did not effect VO_2. respiration rate, ventilatory equivalents, or blood lactate concentration. These data suggest that repeated utilization of ice packs during strenuous exercise may have neg effects on HR and respiratory exchange ratio. However, the lack of sig diff in VO_2 and ventilatory equivalent of O_2 suggest that a single bout of cold application has relatively nominal effects on overall performance.

NORTHEASTERN UNIVERSITY **(P.Grahm)**
BOSTON, MASSACHUSETTS

75. AHEARN, M. The effects of a ten week walking program on the fitness and mood states of older adults. M.S. in Exercise Science, 1987, 54 p. (R.Zobel)

28 M and F volunteers (55-74 years) were randomly placed into exp (n=14) and control gps (n=14) to determine if resting HR, resting BP, bw, Profile of Mood States (POMS), and work capacity were affected by a 10 wk walking program. An individual walking pace (50-75% of predicted max HR reserve) was prescribed for each exp S, who meas and recorded his/her own carotid pulse during rest, exercise, and recovery of each exercise session. BP was meas and recorded weekly. The exp Ss walked (including a warm up and cool down period) for app 1 hr, 3

days/wk, for 10 wk. The control Ss were instructed not to perform any regular exercise. ANCOVA showed no sig diff between the 2 gps in any of the 5 physiological or 6 psych meas assessed. However, there were pos trends observed in resting HR and bw (both decreased) in the exp gp. The results of regression anal indicated modest relationships between selected pre-test variables and change scores (e.g. HR and wt). This 10 wk walking prog showed no sig diff between exp and control Ss in fitness and mood states. However, some pos trends indicate that a longer more frequent walking prog may show sig changes.

76. AVEDISIAN, L.A. Biomechanical effects of fatigue on pronation in female runners. M.S. in Exercise Science, 1987, 49 p. (M. Cairns)

8 F rec runners classified as symptom-free excessive pronators were used as Ss. Running speed ranged from 4 to 7 mph. Light reflective reference markers were used to determine the axis of the lower leg and to estimate the relative position of the calcaneus inside the running shoe. Video data were collected from the rear during every 5 min interval of the run and from these data, angular and temporal parameters were anal. The M and Sd for all angular and temporal variables were determined across the intervals of the run, and a repeated meas ANOVA was used to determine the sig of the diff among the M of each variable over time. The time to max pronation and time to max pronation as a % of stance time were sig greater during the first, fourth, and fifth interval of the run than during the second and third interval. Sig was accepted at the 0.05 level of confidence.

77. BEDNARSKI, K.N. Foot morphology of women athletes. M.S. in Exercise Science, 1987, 39 p. (M. Cairns)

The feet of 4 gps of F athletes and a group of nonathletic F were studied to determine sig diff in dimensional meas among the gps. A total of 250 S's feet were meas. Ss were selected and placed into 5 gps according to the sport they performed: basketball, running, tennis, field hockey/lacrosse, or nonathlete. 6 direct foot meas and 9 footprint dimensions of each S's right foot were anal. The M and SD of the absolute variables were determined. 11 of the absolute variables were normalized to PL and 10 variables were normalized to bw to account for any diff that may have resulted due to the relative body size of the athlete gp. M and SD were also determined for all normalized variables. A repeated measures, 1 way ANOVA was used to determine the sig of the diff among the M of each variable over time and a Tukey's honestly sig diff test was used to locate specific diff among the gps. Diff were found to occur among the basketball, running, and field hockey/lacrosse gps such that specific implications for last modifications of footwear for these gps would improve the fit of the footwear. Arch ht, angular and ht variables (toe angles, swing, toe and metatarsal ht) varied the most among the sport gps and were independent of the shape and size of the foot.

78. BELL, S.C. Perceived exertion during submaximal and maximal exercise in smokers and nonsmokers. M.S. in Clinical Exercise Physiology, 1988, 46 p. (W. Gillespie)

30 Ss (23-48 yr) were statistically matched for age and gender into 2 gps (smokers and nonsmokers) for a retrospective study of data to determine whether chronic cigarette smokers perceive their exertion at higher levels during the same relative exercise intensity (25, 50, 75 & 100% of max HR reserve) than nonsmokers. Each S participated in a max treadmill test using a modified Bruce protocol. During the test, Ss rated their perceptions of central and peripheral exertion using the 12 point

Borg scale while HR was obtained during the last 30 sec of each stage of exercise. Results showed that there were no sig diff in central or peripheral RPE between smokers and nonsmokers at 25% of MHRR. Sig higher ($P < .05$) central and peripheral RPE at 50 and 75% of MHRR and peripheral RPE at 100% of MHRR were found for smokers compared to nonsmokers. No sig diff between smokers and nonsmokers were found for the central RPE at 100% of MHRR. Results indicated that smokers may often perceive themselves to be working harder than nonsmokers at moderate to heavy, but not at light exercise intensities.

79. BELLUSCI, D.C. Physiological benefits of a pulmonary rehabilitation program. M.S. in Exercise Science, 1987, 46 p. (W. Gillespie)

The purposes of this study were to determine the effects of a 12 wk outpatient pulmonary rehabilitation prog on max min ventilation ($V_E$max), VO_2max, and max and submax HR (Hr max and HR submax), on the ratio of max min ventilation to maximum voluntary ventilation ($V_E$max/MVV) and on the relationship of disease status, (FEV_1/FVC to changes in $V_E$max, VO_2max and HR max and submax. The Ss consisted of 30 patients with asthma, chronic bronchitis, and emphysema at Beverly Hospital, Beverly, MA who participated in 12 wk symptom limited, cardiopulmonary graded exercise and pulmonary function tests pre- and post-rehabilitation. 14 Ss were tested on the treadmill, and 16 on the cycle ergometer. The results of the pulmonary function tests for the treadmill-tested gp indicated a statistically sig diff from pre- to post-test using paired t-tests within gps. In the cycle-tested gp, $V_E$max and VO_2max increased sig and ratio, ($V_E$max/MVV) did not sig increase from pre- to post-test. In the treadmill tested gp, $V_E$max increased sig and the ratio, $V_E$max/MVV did not sig change from pre- to post-test. Bivariate regression anal was done to compare the S's disease state as determined by the

$FEV_{1/FVC}$ ratio, versus the changes in $V_E$max, VO_2max, HR max and submax, from pre- to post-test. The results were nonsig in both gps. It was concluded in this study that this pulmonary rehabilitation prog improved functional capacity regardless of the disease state.

80. BIBI, K.W. The relationship of submaximal and maximal heart rate and perceived exertion between continuous treadmill walking and intermittent lap swimming. M.S. in Exercise Science/Cardiovascular Health and Exercise, 1988 (W. Gillespie)

13 M and 2 F healthy, physically active Ss (26-53 yr) were admin a max, volutional, continuous treadmill Graded Exercise Test (GXT) using a modified Balke protocol. EKG determined HR and a Central RPE (RPE-C), using the linear Borg Scale, were obtained prior to the end of each stage. Another max, volutional, intermittent swimming GXT was then admin to each S. Monitored HR, while swimming in the prone posture (MHR-PRO), Monitored Rate Standing (MHR-STA) and a Palpated Pulse Rate (PPR), immediate-post-swimming in the standing posture, and RPE-C were obtained at the end of each lap in order to study the relationship of submax and max HR and RPE-C between responses obtained from the treadmill GXT and the swimming GXT. Diff in HR between PPR and MHR-STA as well as the diff between MHR-PRO and MHR-STA were also studied. There was no statistically sig diff between PPR and MHR-STA ($P > .05$), and between MHR-PRO and MHR-STA ($P > .05$). Therefore PPR obtained immediate-post-swimming in the standing position is a reliable indication of monitored HR immediate-post-swimming as well as while prone swimming. Results showed a HR diff of 10, 11, and 12 beats per min, lower in swimming, at RPE-C values of 12, 15 and 19, respectively. The Karvonen formula was then adjusted for swimmers, when using HR from a treadmill GXT, as such: Upper training limit: (.90 MHR-Rest HR-SUP)

+ Rest HR-SUP) - 11; Lower training limit: (.60 (MHR-Rest HR-SUP) + Rest HR-SUP) - 10.

81. DeMELLO, J.F. A comparison of modified pull-up-strength training devices in elementary school children. M.S. in Exercise Science, 1988, 47 p. (M.Cairns)

93 children were equally assigned into 1 of 3 gps, (Vermont modified pull-up, Baumgartner modified pull-up, and control) to determine which training device is more beneficial in dev upper body muscular strength and endurance. The Ss were from grades 3, 4, and 5 at the Greenwood ELE School in Hyde Park, MA. The instruments used to meas the strength gains were the pull-up to limit and the flexed arm hang test as described in the AAHPERD fitness manual. These were done as the pre- and post-test meas before and after the 12 wk training prog. Absolute scores were multiplied by bw to give a relative strength and endurance score for each test. The training prog was performed before school 3 times a wk for 12 wks. The routine consisted of performing one bout of max reps per training session. An ANOVA was used to compare the m gains in muscular strength and endurance in all of the gps. Based on the absolute m scores, both training gps generated sig greater scores in both the flexed arm hang and the pull-up test, than the non-training control gp. However, the relative strength and endurance m scores indicated that the Baumgartner modified pull-up gp produced sig greater scores in the flexed arm hang test than both the Vermont modified pull-up and the non-training control gps. Results indicated that training with either the Baumgartner or Vermont modified pull-up devices for 12 wks will produce sig gains in upper body muscular strength and endurance in ELE school children

82. GLYNN, E.D. Physiological alterations in cardiac patients consequent to circuit resis-

tance exercise. M.S. in Exercise Science/Clinical Exercise Physiology, 1988 (W. Gillespie)

A control gp (n=8) continued doing their traditional Circuit Aerobic Exercise (CAE) prog with the exp gp (n=8) performing a Circuit Resistance Exercise (CRE) prog. Each S was pre- and post-tested in CV efficiency, musculoskeletal function, and %bf using the following 9 tests: submax leg cycle ergometer, submax arm cycle ergometer, submax bench press, submax leg press, submax leg extension, submax shoulder press, hip flexibility, shoulder flexibility and %bf. The CRE was performed using a Universal Multi Station Wt Training System. Each S performed 15 to 20 rep in 60 sec at each station, rested for 60 sec, then proceeded to the next station. The CRE stations were as follows: leg press, bench press, leg curl, arm curl, toe extension, shoulder press, leg extension and lat pulldown. Each S was monitored by staying within their individual perceived target HR (THR). 13-15 on the Borg Scale was the RPE endpoint of work at each station. The exp gp demonstrated a 17.72% increase ($P < 0.05$) in the submax leg press, from pre- to post-test. The remaining variables showed no sig diff between pre- and post-test. The diff between the control and exp gps in the change scores, showed that the submax leg press demonstrated a greater improvement in the exp gp ($P < 0.00$) compared to the control gp.

83. HODGES, C.B. The effects of short term intervention programs of exercise, weight loss and smoking cessation on cholesterol and lipoproteins. M.S. in Cardiovascular Health and Exercise, 1988 (W. Gillespie)

To determine the relationship of changes in smoking behavior and bw to changes in chol and lipoproteins in workman's compensation patients, 50 M and F volunteered to participate in 1 of three 6 wk risk factor intervention prog: exercise accompanied by smoking cessation (n=8): wt loss (n=35); or smoking cessation and wt loss (n=7). All Ss received counseling on cardiac risk factor modifications including a low chol diet. Bw, smoking behavior, chol and lipoproteins were assessed initially and at the completion of the 6 wk period. The results indicated sig (P < .001) decreases in smoking behavior, bw, total chol (TC), low-density lipoprotein chol (LDL-C), triglycerides (Tri) and total chol/high-density lipoprotein chol (TC/HDL-C) ratio, as well as a sig (P < .025) increase in high-density lipoprotein chol (HDL-C) when all Ss were anal together. The exercise and smoking cessation gp demonstrated sig (P < .05) decreases in smoking behavior and TC/HDL-C ratio as well as a sig (P < .05) increase in HDL-C. The exercise and wt loss gp demonstrated a sig (P < .001) decrease in bw and TC as well as sig (P < .01) decreases in Tri, LDL-C and TC/HDL-C ratio. The exercise, smoking cessation and wt loss gp demonstrated sig (P < .05) decreases in smoking behavior, bw, TC and TX/HDL-C ratio. There was no sig diff found among the 3 prog in the changes in blood lipids. In addition, there were no sig r between change in smoking behavior and bw with the changes in chol or lipoprotein levels.

84. HOWE, V.L. A comparison of body density between black and white athletes. M.S. in Exercise Science, 1987, 55 P. (C. Christensen)

30 black and 30 white M coll athletes were selected from the total population of M athletes participating in Varsity Sports at Boston Coll during the 1985-1986 acd year. The athlete's body density was determined by underwater weighing and skin-fold meas. The M body density of the white M athletes was 1.079 gm/cc. The M density of the black M was 1.089 gm/cc. The Jackson/Pollock (1978) equation for estimating body density showed the M body density was 1.083 gm/cc for white athletes and 1.086 gm/cc for the black athletes. White M body

density using the r for underwater weighing and estimates from Jackson/Pollock was .318 for white M and .810 for black athletes. In conclusion, the Jackson/Pollock regression equation was not a valid estimator of body density of white M athletes, but was a better estimator of body density for the black athletes.

85. KI-HOON, H. Effect of starting position and speed on peak torque of knee flexors and extensors. M.S. in Exercise Science, 1987 55 p. (M. Cairns)

15 nonathletic Ss and 15 football linemen were tested on the Cybex at starting angles of 60, 90, and 120 ° of knee flexion at speeds of 60, 180, and 300 ° per sec. Results showed the relative peak torque production (ft. lb/kg) increased sig from hamstrings and quadriceps in each gp during specific increases in the ROM. The relative hamstrings and quadriceps peak torque production decreased sig in both gps as the testing speed increased. The hamstring/quadriceps ratio changed sig as initial starting angle increased from 90 to 120 ° at speeds of 180 and 300 ° per sec. The ratios did not sig increase for either gp as the testing speed increased. The ratios for the football players were sig greater than for the nonathletic Ss at the low testing speed (60 ° per second) and at the starting angle of 60 °. Football players and nonathletic Ss reached peak quadriceps and hamstring torque at sig diff points in the ROM dependent upon starting position and speed.

86. McMULLEN, J.B. Strength gains resulting from an exercise program on the multiaxial ankle exerciser. M.S. in Athletic Training, 1987, 37 p. (M. Cairns)

9 normal Ss participated in a 6 wk progressive resistive exercise prog on the Multiaxial Ankle Exerciser exercising their nondominant leg while

their dominant leg served as a control. The protocol consisted of completing 3 sets of a complex alphabet pattern on the machine, 4 times per wk. Peak ankle torque data were collected on the Cybex II Isokinetic Dynamometer before and after the exercise prog in the directions of dorsiflexion, plantarflexion, inversiton, and eversion, at speeds of 30, 60, and 120 °/sec. The diff between peak torques of the control and exp leg in each direction at each speed was determined using t-tests. Results showed sig (.05) strength gain in eversion at 30 °/sec and strength gains approaching sig at the other test speeds of 60 and 120 °/sec. It was suggested that other strength gains may have been achieved, in planes not meas, since resistance was progressively increased throughout the protocol. Practical value of this protocol for ankle rehabilitation has been demonstrated since increased eversion strength is a primary objective in ankle sprain rehabilitation.

87. O'HANLEY, S.A. Validation of one-mile walk test in men and women 70-79 years old. M.S. in Exercise Science, 1987, 62 p. (M.Cairns)

To validate a walk test to predict the VO_2max of individuals 70-79 yr old, VO_2max was meas in 29 subjects, 10 M and 19 F, M age 73.7 years, using a modified Balke treadmill protocol. Ss completed two 1 mile walks on subsequent days and VO_2max was estimated using the regression equation designed by Kline et al. (1987). The time for walk 2, 16.63 min was sig faster than 17.09 min for walk 1 ($P < .05$). The r of the estimated VO_2max for the 2 walks was 0.97. The estimated VO_2max from walk 1 was correlated with the observed VO_2max. The r was 0.88 for the total gp. When the estimated VO_2max values were compared with the observed VO_2max by gender, the rs were 0.81 for M and 0.84 for F. Results of the t-tests between the observed and estimated VO_2max indicated that the test provided an accurate estimate of VO_2max in the M, but the F were consistently underestimated. Thus, the 1 mile walk test provides an alternative submax meas of VO_2max in 70-79 yr old individuals.

88. TABOR, L.A. Health related physical fitness testing grades 5-8 and curriculum development at Carlisle Public Schools, Carlisle, MA. M.S. in Physical Education, 1988, 63 p. (R.Zobel)

Students in grades 5-8 in Carlisle Public Schools, Carlisle, MA (41 fifth grade, 49 sixth grade, 44 seventh grade, and 52 eighth grade) were admin the AAHPERD Health Related Physical Fitness test. Both weekly and yearly physical activity patterns of Ss also were surveyed. The results of the AAHPERD Health Related Physical Fitness test showed the following percentile score ranges for each of the 4 test items: one mile run, 51.9%-68.3%; body composition, 53.1%-59.5%; modified sit-ups, 35.5%-54.7% and sit and reach, 54.1%-60.7%. Fifth graders performed best followed by students in grade 8, 6, and 7. The results also showed that, in general, the F performed better than the M. No apparent r existed in any grade or grade and gender gp between the students' performance on the AAHPERD Health Related Physical Fitness test and their weekly school year physical activity participation patterns.

89. WHATLEY, J.E. The effect of exercise compliance on weight maintenance in the obese population. M.S. in Exercise Science, 1987, 40 p. (W.Gillespie)

67 (18-65 yr) moderately obese Ss(M=67.4,+4.3% above ideal wt) had participated in a multidisciplinary supervised outpatient clinic using diet therapy, behavior modification and exercise for wt reduction. Ss were involved in the supervised exercise prog for a min of 5 wks. Ss were classified into 3 gps determined by the min/wk

of exercise. Noncompliers (NC) exercised 0 min/wk; low-compliers (LC) exercised less than 90 Min/wk (M=63.7±4.5 min/wk) and compliers (C) exercised greater than 90 min/wk (M+171± min/wk). A phone survey was conducted 32 wks following completion of the prog. It was found at follow-up that the NC regained a m of 7.8 kg at a rate of .24 kg/wk; LC regained a m of 4.0 kg at a rate of .13 kg/wk versus a statistically diff (P < .01) m loss by the C of-0.9 kg at a rate of -0.01 kg/wk. These data suggest that 100 min/wk or more is the exercise threshold needed for sig wt maintenance over time. Follow-up duration had no sig effect on exercise compliance. These findings reiterate the success of a multidisciplinary wt loss prog and enhance the importance of exercise as a behavior change for sig wt maintenance in the obese population.

OREGON STATE UNIVERSITY (A.ROSSIGNOL)
CORVALLIS, OREGON

90. ADERA, T. Epidemiological study of low back pain: Association with socio-demographic and occupational factors. Ph.D. in Health, 1987 (R. Donatelle)

Low back pain (LBP) is a major HE and economic problem with uncertain etiology, and no known effective means of prevention and control. Data for this investigation were obtained from the second National HE and Nutrition Examination Survey (NHANES II) conducted by the National Center for HE Statistics. The NHANES II utilized a stratified, multistage, probability cluster sample of households to assess the HE and nutritional status of 27,803 persons. The sample population for this study included 10,450 adults aged 25 yr or older. The overall lifetime prevalence of LBP lasting at least 2 wks was 13.8%. This represented a weighted value, adjusted for the probability of selection, non-response, age, gender, and race composition of the US population. A major purpose of this study was to characterize population gps at high probability of reporting LBP. Using multivariate methods, the characteristics of 3 population gps at high probability of reporting low back pain were identified. The first gp consisted of a sample of the general population, and it was found that the probability of reporting low back pain was sig higher for older individuals who were unemployed, had low income, smoked cigarettes, and lived outside of a standard metropolitan statistical area. In order to determine the effect of reproductive factors on the prevalence of low back pain, anal of the second gp was restricted to F. Results indicated that F at high probability of reporting LBP had an early onset of menopause, less than HS educ, and lived outside of a standard metropolitan statistical area. The last gp consisted of persons of both genders in the work-force; and it was found that older age, low income, and working conditions involving vibration and noise were important predictors of LBP. Such characterization of population gps at high probability of reporting LBP should enable HE educ and HE promotion specialists to develop effective educ strategies with the goal of reducing the occurrence and severity of LBP.

91. BEESON, L.J. Midlife pregnancy: A comparative study of the parental attitudes of the mature primigravida and the younger primigravida. M.Sc. in Health Education, 1988 (M.Smith)

This study compared the parental attitudes of mothers under 35 yr of age, who are having their first child, called primigravidas, with the parental attitudes of mothers 35 yr old and older, called mature primigravidas, who are having their first child. Historically, most women in America had to choose between having a career or having children. Today, in America women have more choices. They can choose to have a career, children and family, or both. Many women ages 20 to 35 are choosing to have children before pursuing a career.

other women are choosing to develop their careers first and not have children until they are 35 yr of age or older. Often the women who choose a career first increase their educ and socio-economic status sig before having their first child. In this study the population sample consisted of 90 primigravidas. 50 of the primigravidas were under the age of 35. 30 of the primigravidas were 35 yr and older. The sample population of 80 primigravidas was generated from primigravidas participating in birthing classes held in 12 of OR's northwestern counties. The findings of this study were based upon responses to the 115 Likert Instrument, Parental Attitude Research Instrument (PARI), developed by Schaefer and Bell. The Mann-Whitney U test, at the .05 level of sig, was used to evaluate the results. 17 of the 25 null hypotheses were rejected, supporting the hypothesis that there is a diff in the parental attitudes of primigravidas when age, educ, and socioeconomic status are the quantitative meas. In accordance with the review of lit and the research findings, the following recommendations are suggested: (1) Educators need to update their information on birthing and parenting in order to present available options for the "new" age gp of mature primigravidas; (2) The "new" age gp of first-time mature primigravidas need references that are specifically applicable to their first parenting exp; (3) Informative, new materials need to be disseminated to physicians and other medical practitioners regarding mature primigravidas and their opportunities for a normal birth at ages not historically acceptable; (4) Writers of textbooks in HE need new perspectives that deal with later pregnancies of primigravidas 35 yr of age and older in a more pos, supportive posture.

92. CHAROENRUK, K. The application of item response theory in the cross-cultural validation of the physical estimation and attraction scale. Ph.D. in Education, 1989 (T.Wood)

The purposes of this study were to (a) outline a 3 stage methodology combining functional/conceptual equivalence, item equivalence, and equivalence in construct operationalization to investigate the cross-cultural validity of psych test instruments, and (b) to examine the cross-cultural equivalence of the Physical Estimation and Attraction Scale (Sonstroem, 1978) for English speaking and Thai adolescent M. Functional/conceptual equivalence or translation accuracy was assessed in the first stage using 4 well-known translation methods: pragmatic translation, a modified Delphi technique, back translation, and a bilingual method. Based on these anal the Thai version of the PEAS was judged to have adequate functional/conceptual equivalence. In the second stage the item equivalence of PEAS items across cultures was anal via item response theory. The Ss consisted of 499 M aged 14-19 yr attending OR public schools and 1009 M aged 14-19 yr in Thailand public schools. Employing a 2 parameter logistic model, IRT difficulty and discrimination parameters were estimated using the PC-BILOG prog for the 54 attraction and 33 estimation items in each PEAS version. Statistical comparison of IRT parameters across cultures for each PEAS item separately revealed that 12 attraction and 3 estimation items had acceptable item equivalence, 6 attraction items and 4 estimation items contained translation inaccuracies, while 36 attraction and 26 estimation items were judged to have diff in cross-cultural meaning. Stage 3 of the model assessed the equivalence in construct operationalization of the translated instrument (i.e., the equivalence in the meaning of the underlying latent trait). The presence of ill-conditioned interitem r matrices in both the English and Thai data sets prohibited such an anal in the present study.

93. CHIANG, J. Cardiorespiratory responses to circuit weight training as measured by a biokinetic swim-bench test and a treadmill run test. Ph.D. in Education, 1988 (J.O'Shea)

The goal of this study was to determine if the cardiorespiratory adaptations to an 8 wk circuit wt training prog are better meas with a biokinetic swim-bench test versus a standard treadmill test. The working hypothesis of the study was that since standard circuit wt training prog stress the upper body considerably more than the lower body, then the physiological adaptations to the prog would be more evident in an upper body test of cardiorespiratory responses than a lower body of the same capacity. 12 coll aged Ss participated in an 8 wk circuit wt training prog. Prior to the prog, each S was tested for cardiorespiratory responses by both a treadmill test and a biokinetic swim-bench test. At the conclusion of the circuit wt training prog, the Ss were retested to assess the physiological adaptations that had occurred over the course of the prog. The test retest reliability for the swim-bench protocol dev for use in this study was r=.85. Results of the post-test showed no sig changes in VO_2 max, HR, or respiratory rate for either the swim-bench or the treadmill test. There was a sig increase in ventilatory equivalent for both the swim-bench and the treadmill tests, and also a sig increase in max VE for the treadmill test ($P < .05$). A sig increase in dynamic muscular endurance occurred in all Ss ($P < .01$). It was concluded that although the results from the study were for the most part not sig, a replication of the study using a longer training prog may produce the results that were originally hypothesized.

94. GRAHAM, D.S. An analysis of the relationships between self-perceived occupational stress, reported health status, sex-role socialization, attitude toward feminism, educational attainment, and perceived pay equity among OPEU clerical specialists in the Oregon State employment system. Ph.D in Education, 1989, (M. Smith)

The purpose of this study was to examine the responses to a mail survey of a random sample of F Ss, who at the time of the study were members of the OR Public Employees Union employed as clerical specialists by the State of OR, in order to: 1. determine if sig relationships exist for Ss between: (a) self-perceived level of occupational stress (OS), (b) reported HE status, (c), sex-role socialization, (d) attitude toward feminism, (e) educ attainment, (f) perceived pay equity, and (g) other reported socio-economic and demographic factors; 2. utilize the research findings to dev recommendations for researchers and educators. Completed surveys were returned by 280 F. The study instrument was composed of The Office Worker Health and Well-Being Survey (Stellman et al., 1985), Bem's Sex-Role Inventory-Short Form, Dempewolff's Feminism II Scale, and Caplan's Pay Equity Questions (Caplan, 1975). The research hypotheses were tested by use of chi-square, Pearson's R, and 1-way ANOVA. A multi-linear stepwise regression anal was also performed. Confidence level was set at p=.05. Sig relationships were found to exist between identified components of OS and each of the following: reported HE conditions, attitude toward feminism, educ attainment, perceived pay equity, spouse's employment type, and spouse's employment status. Independent predictors of OS were found to be: irritation/frustration, educ attainment, vision, nose/throat/chest, depression, perceived pay equity, sleep, musculoskeletal, gastrointestinal, personality type, current living situation, and total household income. The findings of this study support the findings of earlier research that clericals are at risk of experiencing sig work-related neg HE outcomes (Dainoff, 1979; National Commission on Working Women, 1979; 9 to 5, National Association of Working Women, 1984; Stellman et al., 1985 & Stellman et al., in press). However, in contrast to the Framingham study and in support of the findings of Kotler & Wingard (1989), no relationships were found between the Ss' no of children, no of children under 6, and the occupational stress reported by the Ss. Recommendations for further research and recommendations for educ were made. It was also suggested that a fuller understanding of what constitutes a healthy work environment for clericals should be dev by researchers and educators.

95. GROSSMAN, S.J. Farm labor camp design in rural Marion County. M. Sc. in Environmental Health Management, 1989 (A. Rossignol).

This study was undertaken to design a Farm Labor camp that would satisfy all federal, state and local regulations which apply to the siting, construction, and maintenance of camps. The regulations applicable to Farm Labor Camps are also identified. A design of a Labor Camp with a central building for washing, cooking and dining and temporary structures for sleeping purposes surrounding it is proposed. A cost estimate for construction of the camp is provided. The study concluded that a camp could be constructed at cost of $15,284.19 that would benefit the employee by providing safe and hygienic living conditions and the employer by stabilizing his labor supply and reducing the possibility of fines.

96. HYLLEGARD, R. An analysis of visual discriminatory skill of baseball players during the first 200 milliseconds of a pitch. Ph.D. in Education, 1987 (M.Maksud)

The primary goal of the study was to determine if and how baseball players discriminate the rotational direction of an approaching pitch during the first 200 msec of the flight of the ball. In addition, coll level baseball coaches were surveyed to assess the level of agreement between coaches relative to what are the most useful cues in batting. Pitches thrown in 6 professional baseball games were also anal to determine the frequency of diff types of pitches, and to meas how successful professional batters are in hitting the ball. 60 Ss viewed film of pitches and recorded whether the pitch was thrown with overspin or underspin. The independent variables were direction of rotation, viewing time, seam type, and pitching agent. 30 coll-level baseball coaches were surveyed to establish their opinions on the importance of the diff perceptual cues available to a batter in making a swing decision. First, the coaches rated the usefulness of cues in pitch identification during the early flight of the ball. Second, they rated which cues are most useful in making a swing decision. Finally, they rated the relative importance of perceptual versus conceptual cues in batting. The following results were noted: (1) the baseball gp could discriminate the rotational direction of a pitch within the first 200 msec of the flight of the ball; (2) the baseball gp used information detected from the seams of the ball to discriminate between pitches; (3) the baseball coaches were divided on which cues are most useful for discriminating between pitches during the early flight of the ball; (4) the coaches agreed that the single most important factor in making a swing decision is location; and (5) the coaches were divided on whether perceptual or conceptual information is most important in batting. It was recommended that coaches, tchrs, and instructors should teach their players to use rotational information to help them discriminate between pitches. Additionally, baseball players should understand the basis of ball dynamics in order to understand how rotation affects the flight of the ball.

97. KILLGORE, G.L. The effect of surface type on plantar pressure distribution and running kinematics. M.Sc. in Physical Education, 1989 (T.Wood)

The purpose of this study was to examine pressure at 5 selected sites on the plantar surface of the foot and adaptations in running kinematics among 14 M varsity coll distance runners on 5 different surfaces - asphalt, cinders, concrete, grass, and tartan. Pressure data were collected with an Electrodynogram system (EDG) and kinematic data were collected with a Redlake LOCAM 16mm high-speed camera operating at 100fps. Repeated meas ANOVA was utilized to evaluate diff ($p < 0.10$) among the variables. Pressure at the fifth metatarsal site on the left foot was found to be higher on the harder surfaces -- asphalt, concrete, and tartan -- than on the softer surfaces -- grass and cinders. Higher pressures were found, in general, on the metatarsal region of the foot as opposed to the calcaneal region, especially while running on the harder surfaces. This finding may suggest that adequate shock absorption occurs in the calcaneal region of the shoe used in this study, and/or the metatarsal region of the foot-shoe interface may merit more attention than is commonly thought. This contention is substantiated by the research of Cavanagh & LaFortune (1980). Among the kinematic variables quantified -- stride length, stride rate, single leg support time, and swing time, -- only stride rate varied with surfaces. Stride rate was found to be slightly, but sig ($P < 0.10$) slower on concrete and asphalt than on the softer surfaces. The diff observed may be representative of a tendency of runners to slow down on concrete and therefore attenuate as much force as possible. This contention is substantiated by the research of Feehery (1986) and Nigg (1985). The other 3 kinematic variables were relatively unaffected by diff in the running surfaces investigated. The results of this study indicate that the underlying mechanisms and adaptations to running on diff surface types are extremely complex phenomena which merit more investigation before physical educators and coaches can be provided with firm guidelines for appropriate running surface(s) for students and athletes.

98. KIM, K. Analysis of Korean Physical Educators attitudes toward teaching handicapped students in regular classes. M.Sc. in Education, 1987 (J. Dunn)

The purpose of this study was to examine Korean physical educators' attitudes toward teaching handicapped students in their regular classes. 98 schools were randomly selected from middle schools in Korea. A total of 213 Korean physical educators was the sample size used in this study. The survey instrument used was the Physical Educators Attitudes Toward Teaching the Handicapped (PEATH). The data were collected by the investigator and anal with the assistance of an IBM Computer and NCSS Software Package. Paired t-test comparisons, Pearson Product-Moment r, and Multiple Regression procedures were employed to determine the diff between teachers' attitudes toward learning handicapped students and attitudes toward physically handicapped students, the relationship between teachers' attitudes and each demographic variable, and the predictability among demographic variables. A sig diff was found between teachers' attitudes toward physically handicapped students. The result suggests that Korean physical educators prefer to teach learning handicapped students rather than physically handicapped students in their regular classes. No relationship was found between teachers' attitudes and 5 demographic variables studied: teacher's gender, yr of teaching exp, degree earned, age, and teaching exp with handicapped students. Therefore, these variables were not found to be predictors of teachers' attitudes toward the handicapped.

99. KOSA, B. The relationship between burnout and selected demographic and job-related variables among Oregon Public School teacher-coaches: Identifying coping strategies. Ph.D. in Education, 1989 (T.Wood)

The purposes of this study were to determine relationships between burnout and selected demographic and job-related variables and to identify burnout coping strategies commonly used by teacher-coaches in public secondary schools. A volunteer sample of 193 teacher-coaches responded to a 3 section questionnaire composed of the Maslach Burnout Inventory, the Jaloweic Coping Strategies Inventory, and a demographic information sheet. Data were anal using descriptive statistics, the chi-square test of independence and Cramer's V statistic, and 1-way ANOVA with Newman-Keuls post hoc pairwise comparisons. the reported level of burnout among teacher-coaches was moderate in each of the 6 burnout dimensions. Emotional exhaustion frequency was related to age, teaching exp and salary. Emotional exhaustion intensity was related to age, yrs at present school and no of sports coached in a yr. Depersonalization frequency was related to specialization taught, type of sport coached as head coach, and gender of athletes coached as head coach. Depersonalization intensity was not related to any demographic or job-related variable. Personal accomplishment frequency was related to teaching exp, specialization taught, and salary. Personal accomplishment intensity was related to age, specialization taught and salary. Tension-releasing coping tended to be employed in coping with emotional exhaustion. Problem-focused coping strategies tended to be used in coping with low personal accomplishment. Problem-focused, tension-releasing, and to a lesser extent morale-maintaining strategies were used in coping with feelings of depersonalization. Problem-focused coping was neg related to depersonalization frequency and intensity and low personal accomplishment frequency and intensity. Tension-releasing coping was pos related to emotional exhaustion frequency and intensity and depersonalization frequency and intensity. Morale-maintaining coping was pos related to depersonalization frequency.

100. KRITPET, T.T. The effects of six weeks of squat and plyometric training on power production. Ph.D. in Education, 1988(J.O'Shea)

The purpose of this investigation was to determine the effectiveness of a 6 wk strength training prog consisting of squat and plyometric exercises on vertical power jump performance, static and dynamic muscular strength, and muscular power production in coll age adults. 15 M and 2 F coll students in an advanced wt training class at the Oregon State Univ served as Ss for the study. 9 Ss trained only with squat exercises whereas 8 Ss trained with combined squat and plyometric exercises. All Ss trained twice a wk for 6 wks. A pre-test and post-test randomized gps design was utilized in this study. The statistical anal was conducted using a paired $\underline{t}$-test, and a repeated meas ANOVA. A .05 level of sig was selected for rejection of the null hypothesis ($p < .05$). The results of the training prog indicated a sig mean increase ($p < .05$) from the pre-test to post-test for the vertical power jump within the combined squat and plyometric training. Static strength sig decreased ($p < .05$) from the pre-test level to the post-test level within the squat training prog. Hamstring strength and hamstring power were sig diff (P .05) within both training prog when pre-test and post-test m scores were compared. However, no diff existed between the gains achieved by the two training prog. The results of this study will assist physical educators and coaches in designing more effective training prog both at the HS and coll level.

101. LASHBROOK, W.S. An evaluation of airborne bacteria concentrations and ventilation rates in an industrial office environment. M.Sc. in Environmental Health Management, 1988 (D. Lawson)

This study investigated the relationship between airborne bacteria densities and varying ventilation rates in industrial office areas. The 2 objectives of this study were as follows: (1) to determine the r of bacteria density and ventilation rates in each sample area; (2) to meas the reported incidence of respiratory illness in each sample area. 54 samples were collected from 3 companies in the local area. 6 sampling sites in each company were sampled 3 times each, 30 days apart. At each sampling site a survey was admin to all employees working in that area. The study design consisted of 2 sets of data. The first was an r of bacteria density to 7 independent variables, consisting of important factors associated with each study area. The second was a comparison of the percentage of healthy office workers with 8 factors taken from the survey questionnaire. An r distribution was used to compare bacteria density to the independent variables listed above. Anal of the results of this research provided the following conclusions: (1) the necessary sampling period for industrial office area environments to obtain adequate bacteria colony formation on the cascade impaction collection media was 45 min; (2) the normal airborne bacteria density in industrial office areas appeared to be 30 colony-forming units per 3 m; (3) the air exchange rate, in the range normally exp in industrial office areas, seemed to have no sig effect on airborne bacteria densities; (4) illness prevalence among the employees working in the areas sampled in this study appeared to be app 50%; (5) neg r of temp and time of day to airborne bacteria density occurred at 1 of 3 corporations. Since this was the only company with a variable ventilation system which operated only during the day, further study in this area is warranted; (6) 65% of the people who had allergies considered themselves to be in good health. It can be hypothesized that some of the illness reported by the nonhealthy people was really due to allergies; (7) 58% of the respondents who had a low opinion of their air-handling systems considered themselves to be unhealthy. These individuals tended to attribute their illness to the poor ventilation system.

102. LEE,J. An electromyographic comparison of eight sit-up variations. M.Sc. in Education, 1988 (S.Hall)

The purpose of this study was to assess the relative involvement of 4 muscles - rectus abdominis, external obliques, rectus femoris, and the lumbar region of sacrospinalis - during performances of 8 different variations of the sit-up exercise. The sit-up variations investigated were long-lying sit-ups with/without feet support and hook-lying sit-ups with knee angles of 65, 90, and 105^o with/without feet support. 27 M volunteers between the ages of 20 and 36 yr participated as Ss in the investigation. Myoelectric activity was monitored using an Orion Computerized System with a pair of surface electrodes positioned over each of the 4 muscles on the right side of the body. A clear plastic goniometer was aligned over the hip, knee, and ankle joints to meas knee angle. 3 rep of each sit-up variation were performed, with sit-up variations admin to each S in random order. 1 min of rest was given between sit-up variations to min the influence of fatigue. A 2-way ANOVA with repeated meas on both factors was used to evaluate diff in myoelectric activity levels. The main factors were feet support (supported/unsupported) and knee angle (Long-lying or hook-lying with 65, 90, and 105^o knee angle). Statistical sig ($P < .05$) of m diff were tested using the statistical software BMDP2V on the CYBER mainframe computer. Tukey's HSD or Bonferroni pairwise comparisons were used for evaluation of sig F values for knee angle, while the Scheffé procedure was used to evaluate sig interaction effects. Sit-ups with feet unsupported produced sig greater myoelectric activity than with feet supported in all 4 selected muscle gps. The hook-lying sit-up with larger knee angle produced sig greater myoelectric activity in the external obliques and the sacrospinalis. In the external oblique, only the mean comparison of long-lying vs. hook-lying sit-up with 105° knee angle showed a sig interaction diff. Increased knee angle in hook-lying sit-ups resulted in increased involvement of the abdominal muscles. Myoelectric activity at the sacrospinalis site was greater with increasing knee angle and with the feet unsupported.

103. MOREHOUSE, J.W. The effect of trials-to-criterion on the retention of a discrete motor skill by moderately and severely mentally retarded individuals. Ph.D.in Education (J. Dunn)

The purpose of the study was to investigate the effect of trials-to-criterion on the retention of a discrete motor skill (overhand beanbag throw) by moderately MR and severely MR individuals. Non-mentally retarded individuals were involved as a control gp. The Ss were grouped by degree of retardation and randomly assigned to 1 of the 3 treatment gps: 2, 3, or 4 consecutive trials-to-criterion. The task consisted of an overhand throw of a 2-in square beanbag into the inner circle of a target from a distance of 10 ft. The Ss were provided 1-to-1 instruction until their respective criterion (2, 3, or 4 consecutive correct attempts) was met without assistance. The Ss were given up to 8 wk of instruction 3 times per wk to meet criterion. A nationally validated systematic approach to instruction for the severely handicapped, as designed by Teaching Research and Oregon State Univ, was used. The no of attempts it took each S to achieve the learning criterion (2, 3,or 4 consecutive correct attempts) was recorded. All Ss began the retention interval once their respective learning criterion was met. At the conclusion of the 4-wk retention interval the Ss were given a posttest to determine if the skill had been retained. 2 consecutive correct attempts were used as criterion for the retention test. If the Ss did not meet the posttest criterion, 1-to-1 instruction was provided until 2 consecutive correct throws were achieved. The no of attempts it took each S to reach 2 trials-to-criterion after the retention interval was utilized as a meas of retention. A generalized, randomized block ANCOVA was used to determine if any sig diff existed between the exp and control gps. The pretest served as the covariate and was used as the reference for comparison to the post-test. The results of the study indicated that the scores of the MR Ss improved as a result of the treatment effect. Severely MR Ss who exp 3 and 4 trials-to-criterion performed sig better than severely MR Ss in the 2 trials-to-criterion gp. No sig diff in the treatment gps were found for the nonmentally retarded and the moderately MR gps. However, the moderately MR approached sig with better scores obtained Ss in the 3 and 4 trials-to-criterion gps. On the basis of the findings of this study and within the limitations of the investigation, it was concluded that increased trials to criterion sig influenced the retention scores of severely retarded individuals.

104. NEARINGBURG, P.G. The effects of three levels of contextual interference on the acquisition and retention of a sequential motor skill by moderately mentally retarded and nonretarded individuals. Ph.D.in Education, 1989 (J.Dunn)

The purpose of this research was to investigate the effects of 3 levels of CI on the acquisition and retention of a sequential motor skill, by moderately MR and nonretarded Ss. The Ss were functioning between an 8 and 12 yr level. The dependent meas included; RT, TRT, and error scores. The exp task required Ss (N=36 moderately MR, and N=36 nonretarded), to initiate and complete the motor pattern by running as quickly as possible through

3 mat patterns. A 2 (IQ) X 3 (Practice Condition) X 3 (Task) repeated meas design was used to anal the RT and TRT dependent meas during acquisition and retention. A MANOVA was initially employed. Sig effects were further anal through ANOVA procedures. An alpha level of 0.10 was used in this study. In addition to RT and TRT meas, anticipation errors and mat errors were recorded. A sig main effect for RT and TRT during acquisition was found between intelligence gps. There were no sig diff in RT between the intelligence gps during retention. Sig diff between intelligence gps were found with respect to TRT during retention. There were no statistically sig diff between the practice conditions with respect to RT and TRT. Empirical evidence supported the presence of task diff. Throughout the study, the nonretarded Ss produced fewer anticipation errors and fewer mat errors than moderately MR Ss. The total frequency of mat errors increased for both the MR and nonretarded gps, from acquisition to retention. It was concluded that there were no diff with respect to RT and TRT, as a function of contextual practice condition.

105. RAT-RIM-CHONG, A. A perceptual comparison of experts, principals and teachers with respect to school health programs within the Elementary schools under the jurisdiction of Bangkok Metropolis, Thailand. Ed.D.in Education, 1988 (D.Phelps)

This study compared the perception of HE educ experts, principals and teachers regarding the ranking in order of importance of organizing school HE prog within the ELE schools under the Jurisdiction of Bangkok Metropolis, Thailand. Of 604 Ss participating, 19 were HE educ experts from univ, Ministry of Public HE and Ministry of Educ; 264 were principals and 321 were classroom teachers from ELE schools under the Jurisdiction of Bangkok Metropolis both in the inner and the outer zones of

Bangkok Metropolis. A questionnaire was constructed and examined by a Thai jury to ascertain content validity. The questionnaire was pretested before the final form for comprehension and clarity of Thai language. The Statistical Package for Social Sciences (SPSS) was used to anal the data.

106. RIVERA, J.B.T. Staphylococci as microbiological indicators to estimate the quality of swimming pool waters. M.Sc.in Environmental Health Management, 1988 (D.Lawson)

Previous studies have indicated that staphylococci have potential for use as indicators of water quality in swimming pool and other rec waters. However, these organisms are not yet included in the official guidelines for rec water quality promulgated by HE authorities. The purpose of this study is to determine water quality of swimming pools and spas using staphylococci as microbiological indicators. On 3 occasions, between Jan and Feb 1988, water samples were collected from 14 public, indoor, chlorinated swimming pools and spas in Linn and Benton Counties. Any pool was considered unsanitary if *Staphylococcus aureus* was isolated and identified using the protocol outlined in the Standard Methods for the Examination of Water and Wastewater in accordance with the OR State HE Division guidelines. The temp, water clarity, pH, free chlorine, and total alkalinity likewise were meas for a more effective evaluation of the bacteriological results. Based on the above criteria, *Staphylococcus aureus* was isolated and identified in 33% of the swimming pools. The number of total coliforms isolated from these pools were not any higher than the other pools. *Staphylococcus aureus* was not recovered from water samples collected from the spas. Staphylococcal and coliform densities increased with decreasing concentration of free chlorine, but the densities of both organisms increased with increasing bathing load. However, no statistical sig was noted from r ($p>0.05$). The no of total staphylococci and total coliforms isolated from the surface micro-layer using the Millipore membrane filter was higher than those obtained from the inlet and outlet sites. When these organisms were correlated, a sig result was observed for the surface microlayer ($r = 0.5836$, $p = .01423$), but not for the other 2 sampling sites (inlet and outlet). Thus, the use of the membrane filter is a more effective means of recovering these organisms. Results of this study suggest that swimming pools that appear to be well-maintained could harbor pathogenic organisms such as *Staphylococcus aureus*. Furthermore, in comparison to coliforms, *Staphylococcus aureus* was found to be a more sensitive indicator of rec water quality. Further investigations appear to be warranted to confirm these findings.

107. ROE, L.L. Eating disorders among female athletes: Factors to be included in coaches' prevention/intervention guide. M.Sc.in Health Education, 1987 (R.Donatelle)

The purpose of this study was to determine the major content areas for inclusion in an Eating Disorders prevention-intervention guide for coaches of F coll athletes. To achieve this goal the current lit was reviewed to identify the major issues associated with eating disorders and F coll athletes. From this information, 10 potential content areas were identified. Once content areas were identified, several statements were developed which reflected potential sub-areas of information. The content areas were then organized into a 2 part questionnaire. The questionnaire was mailed to 9 recognized exp representing coll athletics, student HE services and psych, for evaluation. Part 1 of the questionnaire asked experts to indicate how important each item (sub-area) within the given content area was on a 5-point Likert-type scale. In part 2 of the questionnaire, exp were asked to indicate the relative importance each content area should be given in a guide. Questionnaires were returned by all 9 exp. Comments made by exp on the questionnaires resulted in modifications of 7 content area statements. The information obtained from the study will be used as a basis for the dev of an Eating Disorders prevention-intervention guide for coaches of F coll athletes.

108. SHAKE, C.L.L. The effects of warm and cold water scuba finning on cardiorespiratory responses and energy expenditure. Ph.D. in Education, 1989 (M.Maksud)

This study was designed to determine cardiorespiratory and energy expenditure responses elicited by rec divers while finning at a submax intensity (35% max) in cold (18°C) and warm (29°C) water with and without wet suits. M divers (15) volunteered to participate in 5 exp procedures. A max graded exercise tethered finning test, two submax (30 min) finning tests in 29°C with and without wet suits, and two submax (30 min) finning tests in 18°C with and without wet suits were performed. The variables meas were: breathing frequency (BF), minute ventilation (V_E), VO_2, respiratory exchange ratio (RER), HR, and core temperature (CT). Caloric expenditure (kcal) was calculated from RER and VO_2. A 4-way ANOVA and repeated meas design was used to anal the data. A sig ($p < 0.05$) 2-way (suit x time) interaction was revealed for BF. A sig ($p < 0.01$) 3-way (suit x temp x time) interaction was revealed for V_E when comparing dives with and without suits. Diving in 18°C with suits elicited higher BF and lower V_E than diving in 29°C without suits. VO_2 increased sig during 3 of the 4 dives. Diving without suits elicited higher VO_2 values though this was not sig in every case. Diving in a cold environment elicited higher VO_2 and V_E. The 18°C dive with suits elicited lower RER responses than the 29°C dives without suits. Cold stress dives elicited higher RERs, when compared to heat stress dives (not sig). HR increased sig during the 4 dives. Diving in 18°C with suits produced sig higher HR's compared to 29°C diving without suits, suggesting that the suits provided adequate heat loss protection. CT sig increased during 3 of the 4 dives. The sig decrease in CT occurred in the 18°C dive without suits. CT rose to a higher degree during the 18°C dive with suits than the 29°C dive without suits. This research will be useful to physiologists, and diving instructors and associations. This study should increase knowledge about scuba diving and help to improve diving educ and safety.

109. TAYLOR,C.G. Belief systems of Jamaican mothers regarding bottle supplementation of breastfed infants. M.Sc.in Health Education, 1989 (M.Smith)

International HE lit clearly describes the importance of breastfeeding for children's health. The risks of bottle feeding in impoverished and unhygienic environments are also widely documented. Gastroenteritis, one of the most common problems associated with bottle feeding in the Third World, is the leading cause of death for Jamaican children under 5 yr. Studies of infant feeding practices in Jamaica indicate that most mothers provide bottle supplements to their breastfed infants. The primary purpose of this study was to examine the belief systems of Jamaican mothers regarding breast and bottle feeding. A flexible discussion guide was developed to focus attention on the research questions. The guide was used during discussions with gps of 6 to 9 mothers, and data were collected through these audio-taped discussions. In order to explore the culturally rooted beliefs and subjective perceptions of participants, candid and informal dialogue was encouraged among the women. The 50 mothers who participated in this qualitative study were selected by community-based Jamaican organizations in urban and rural locations. Data were anal by categorizing responses transcribed from the recorded discussions. Themes within these broad categories were then identified. A comparison of the concepts identified through this process with the infant feeding guidelines established by the Jamaican Ministry of HE formed the basis for the discussion of the study's implications. Suggestions for future research are provided and recommendations for implementing breastfeeding educ in maternal and child HE clinics are described. The concluding discussion explores possibilities for expanding breastfeeding promotion efforts in Jamaica and considers this health issue within a larger historical, cultural and socioeconomic context.

110. WANG, J.C. The impact dynamics of a tennis ball striking a hard surface. Ph.D.in Physical Education, 1989 (C.Zauner and H.Freund)

The purpose of this research was to study the impact phenomena of a tennis ball striking a hard surface. Stroboscopic photography was used to collect the ball's impact images from 7 angles of incidence, ranging from -23° to -70° with zero, top and back initial spin respectively. Through digitization, the image data were converted and calculated into the exp parameters which were composed of the input/output of the translational and angular velocities, and into the system parameters which included the coefficient of restitution, coefficient of sliding friction, ball's dwell time, and ball's dwell distance. Mathematical model derived from both the diff and integration approach were dev to explore the impact phenomena. A -23° angle of incidence for the data sets (zero-spin, top-spin, back-spin) was selected to carry out the mathematical anal using both exp and system parameters. The results were: (1) The successive diff approach did not lend itself well to the investigation of tennis ball impact phenomena; (2) The successive integration approach based on the Damped

Sin Pulse Model, could be used successfully to describe both the horizontal and vertical forces, velocities and positions of ball impact on a surface; (3) In the case of -23° incident angle, the effect of top-spin will produce a high value for the coefficient of restitution, which provides the ball a chance to rebound higher; (4) The horizontal component velocity will influence a shallow angle impact with back-spin ball on a surface to have a smaller sliding friction; (5) The findings of this study will provide the instructor of tennis skills with information to fully explain the effects of utilizing the racquet to impart spin to the tennis ball; (6) This study provides guidelines for future research that is likely to affect the methodology of teaching tennis skills.

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111. BASLER, J.L. An analysis of the movement patterns of disabled and non-disabled children on a playground. M.S. in Recreation and Parks, 1988, 66 pp. (H.M.Lundegren)

This study investigated the mvmt patterns of 2 gps of children: disabled, defined as those children attending their comm ELE school but segregated into a special class (usually mildly MR and LD); non-disabled. 16 children, 8 in each gp with gender equally divided, were observed on their school playground during 5 separate free-play sessions. The data collection was conducted on a traditional style playground with equipment of similar design. Several hypotheses were tested by use of ANOVA. Results show that the non-disabled gp travels greater horizontal distance and spends less time in contact with the equipment than the disabled gp, the M travel greater distance than the F. No diff was found in regard to equipment use by location or gender. Most importantly, results of this study show that despite the diff between the gps the patterns of play are similiar.

112. BERGSTROM, K.M. Effects of participation in a structured unit of body awareness activities on the balance abilities of elementary children with and without mental retardation. M.Ed. in Exercise and Sport Science, 1988, 140 pp. (H.M.Lundegren)

Study consisted of 8 Ss, 2 M and 2 F with MR (EMR) and 3 M and 1 M without MR with a CA range of 5-8 yrs. 30 min individual activity sessions were held 5 days a wk for for 3 wks after a stable baseline performance was established. The Stork Stand (eyes open and closed, flat footed and on the ball of the foot) and the Leaping Footprint Test were admin daily from the beginning of establishing a baseline to the end of the treatment. The Draw-a-Person Test was admin 3 times, once prior to the start of the baseline, again at the end of the establishment of the baseline and finally at the end of the treatment. Baseline and treatment M's were compared for each S on the Stork Stand (eyes open, flat footed) within and between the 2 gps of Ss for the Stork Stand (eyes open and closed, flat footed) and the Leaping Footprint Test. Visual inspection of individuals S graphs also occurred. The highest-scored drawing prior to any treatment was compared to the one done at the end of the treatment. Paired t-tests at the .05 level were used to compare the data for each S and within each gp. An independent t-test was used to anal the data between the 2 gps. Daily individual data were displayed in graphic form. A sig diff for all the Ss was found in the balance and body awareness activities. Difficulties were encountered by all Ss in the performance of the Stork Stand (eyes open and closed, on the ball of the foot). A sig diff was found within each gp on the balance tests and body awareness scores as a result of the unit of body awareness activities. No sig diff were found between gps, except for the Stork Stand (eyes closed, flat footed) and the Draw-a-Person Test. The balance diff favored those without MR, and the body awareness diff favored the MR group.

113. BRAMANTE, A.C. Establishing a basis for the development of an undergraduate curriculum in recreation and leisure studies in Brazil: a Delphi approach. Ph.D. in Recreation and Parks, 1988 (G. Godbey)

The purpose of this study was to identify selected elements critical to the dev of an undergraduate curr in rec and leisure in Brazil. These elements included: (a) a set of contextual facts, events and trends; (b) general objectives for such a prog; and (c) competencies one must have upon graduation. In order to obtain the information needed for this study a modified exploratory Delphi approach was utilitzed. A gp of 49 Brazilian experts was selected representing 3 major sectors: (a) public rec, (b) private rec, and (c) educators in this field of study. An interactive process based upon each expert's opinion, interspersed with fb information from the entire gp took place during 4 diff stages ("rounds") in Brazil. Data were anal to verify the degree of consensus among experts on the formulation of general objectives and competencies, and sig of the diff among sub-sample's opinions within the gp of respondents (place of origin: south/ north, acd background: physical educators/others, and occupational setting: practitioners/educators). Findings from this study showed a high level of agreement among panelists in relation to the framework for curr implementation in rec and leisure in Brazil. Major areas of concern included the anal of the present social, economic, political and cultural issues in the country, theoretical and practical components of an undergrad prog and research needs in the area. Conclusions and recommendations for further studies covered areas such as the reformist posture of experts, the potential for political interference using rec as a tool for social control, financial aspects of the public rec, the need for a professional association in Brazil, guidelines for professional preparation in the area, the relationship between REC and PE, and, finally the efficacy of the Delphi method as a technique to achieve consensus.

114. DAVIS, G.S. The effect of contextual and retroactive interference on the retention of a motor skill. Ph.D. in Exercise and Sport Science, 1988, 179 pp. (J.B.Shea)

The present study investigated the possibility that the CI effect may be due to decrement in blocked practice retention caused by retroactive interference. 72 right-handed Penn State undergrad students performed tasks on a barrier knockdown apparatus. Ss were randomly assigned to 6 gps. 3 conditions of acquisition practice were crossed with either a condition of interpolated activity filled with 32 practice trials of 2 similar barrier knockdown tasks or a condition of rest comparable to the time required to practice these tasks. The acquisition practice context conditions consisted of: 1) serial practice of 3 similar tasks for 54 trials, 2) practice of 1 task for 54 trials, and 3) practice of 1 task for 18 trials. Performance was meas by RT, MT, TRT, and errors in the acquisition, filled activity, and retention phases of the exper. Free recall, arrow-cued recall, and task diagram recognition were tested in retention. Interpolated learning of similar motor tasks produced retroactive interference in motor task recall regardless of acquisition context. The results suggest that the CI effect is caused by a decrement in recall produced by a blocked schedule of practice.

115. HIND, P.A. An assessment of current attitudes and practices in environmentsal education in elementary schools throughout the Commonwealth

of Pennsylvania. M.S. in Recreation and Parks, 1988, 121 pp. (G.C.Godbey)

This study was conducted to determine the existence and extent of environmental educ prog and practices in ELE schools throughout PA. An instrument was developed in order to obtain information about educ prog in public ELE schools. This questionnaire was sent to ELE school principals during the 1985-86 acd school yr. Frequencies and percentages were used to anal the data. The chi square test was also utilized to determine whether a sig relationship existed between selected variables. It was found that the majority of school districts have some type of environmental educ prog however, most did not have a written environmental educ curr or an environmental educ coordinator. The majority of schools did not participate in a residential program. Funding, lack of time to develop an environmental educ prog and lack of instructional time were primary factors inhibiting the growth of environmental educ. Typically, environmental educ was integrated into other subject areas. Although not appearing to have a high priority, most principals were planning to provide more in-service training in environmental educ. Environmental educ was perceived as important to very important by the staff and school district admin with most principals believing that it has a place in the school curr.

116. JONES, S.A. Campground characteristics and occupancy rate at Pennsylvania State Park campgrounds. M.S. in Recreation and Parks, 1988, 118 pp. (A.R.Graefe)

This study examined the relationship between campground characteristics and occupancy rate at 26 PA State Park campgrounds. 20 campsites were randomly selected in each campground for data collection. Independent variable data, campground characteristics, were obtained via visual inspection and included 3 categories: water resources, vegetation resources, and locational resources. The instrument used was a written listing of specific distance, percent, and counting meas. The DV, occupancy rate, took on 2 forms in this study; individual campsite occupancy and campground occupancy. r and multiple regression anal were used to test all relationships. Results indicated that the Size of Lake, Presence of a Beach, Number of Fish Species Present, Number of Water Rec Opportunities, Adjacent Population, and Presence of a Nature Center variables were sig related to campground occupancy. The variables Distance to a Water Resource, Distance From Swimming Area, Amount of Screening, Amount of Shading, Distance Between Campsites, and Distance to Potable Water were sig related to campsite occupancy. Each of the aforementioned variables should be seriously considered when planning or modifying a PA public camping facility.

117. LANAGAN, D.Y. The effect of leisure education and leadership style on adults who have mental retardation. M.S. in Recreation and Parks, 1988, 127 pp. (J.P.Dattilo)

One way to improve the quality of life for people with disabilities is to promote control in their REC activities. Control can be encouraged by leadership style and knowledge gained from leisure educ. This study had 4 phases: (a) baseline-REC participation activities, (b) treatment-participants received same leisure educ prog, half taught with authoritarian style, half with democratic, (c) same as (a) and (d) same as (b). The hypotheses stated that involvement would be higher in the democratic gp and during the leisure educ phases. The Ss were 39 adults with MR in a day treatment center. Sessions lasted one half hr each day for 8 wks and were videotaped for viewing involvement behaviors. An ANOVA-R was admin to anal between gps (leadership style) and within-gps (leisure educ). No diff appeared between the leadership styles. Lack of exp in making choices could have affected their understanding and ability to exert control. There was a diff between REC participation and leisure educ. Involvement sig increased from the first phase to the second, remained at the higher level throughout the third, and increased slightly during the fourth. This pattern shows the possibility of knowledge retention on appropriate leisure behaviors and attitudes taught in the first leisure educ phase.

118. LEWIS, D.A. Heat, exercise and adrenergic blockade: Cardiovascular and thermoregulatory responses of six young men. Ph.D. in Exercise and Sport Science, 1988, 154 pp. (J.L. Hodgson)

6 heat acclimated, healthy young M (m VO_{2peak} of 48.05 $\text{ml-kg}^{-1}\cdot\text{min}_{-1}$) were tested as they exercised at 30% of VO_{2peak} in hot (37°C, rh = 60%) and thermoneutral (23°C, rh = 40%) environments while taking prazosin, atenolol and propranolol on separate wks. Responses meas included: rectal temperature (T_{re}), esophageal temperature (T_{es}), m skin temperature ($\bar{T}_{sk}$), HR, BP, $\dot{V}O_2$ $\dot{Q}$, forearm blood flow (FBR), m sweat rate and percent change in plasma volume (PV). These were compared to a placebo control. Decreases in HR and $\dot{Q}$ occurred with atenolol and propranolol compared to placebo. HR with prazosin and atenolol increased compared to placebo. MAP was sig lower with prazosin and atenolol compared to placebo. M exercise times were less with propranolol than with placebo. There were no changes in T_{es} or T_{re}. However, comparisons of the slopes for FBF:T_{es} showed all drugs to have diff effects from each other and from placebo. It was concluded that the drugs had no effect on T_{es} at this exercise inetnsity and these environments, however, T_{es} was maintained at a greater cost to the CV system. Additionally, FBF:T_{es} data (greater slopes for prazosin versus placebo) indicate there is active vasoconstriction occurring

in the periphery during exercise, even in the hot environment.

119. ROWLAND, B.E. The effects of the type-1 diabetic condition on recreational participation and perceived levels of anxiety associated with recreational activity and exercise in college-aged diabetics. M.S. in Recreation and Parks, 1988, 108 pp. (H.M.Lundegren)

To investigate the effects of the type-I diabetic condition on rec participation and perceived anxiety associated with physical activity, several research questions were formulated addressing various aspects of diabetes management and participation in rec activities and exercise. With the assistance of the Univ's He Services and through campus bulletin board postings, a total of 56 Ss were recruited to participate, each having been diagnosed as having type-I diabetes at least 1 yr prior to this study. Instrumentation included a mailed questionnaire, a modified version of the Leisure Activities Blank (McKechnie, 1975) and the State-Trait Anxiety Inventory (Spielberger, 1966). The data generated from the survey instruments were anal and presented using descriptive statistics. A z-test was also used to anal the sig of the relationship between the Ss' trait anxiety scores and the norms provided for this meas. It was found that most coll aged type-I diabetics participate in a wide range of rec activities and exercise at levels equal to or above established norms for CV improvement and that the majority of diabetics do not perceive their rec behavior to be influenced by their diabetes. Although hypoglycemia is considered to be the most sig aspect of type-I diabetes eliciting concern when planning or engaging in rec activities, the majority of diabetics are not overly anxious in their approach to exercise and do not exp abnormal levels of trait or state anxiety which may interfere with rec participation.

120. SCHUSTER, E.G. Foot blood flow changes during treatment with ice and/or compression. M.S. in Exercise and Sport Science, 1988, 74 pp. (W.L. Kenney)

The standard treatment following an acute soft tissue injury is ice and compression to primarily limit bleeding and edema. This study compared the efficacy of ice and compression, alone and in combination, in lowering foot blood flow. 12 healthy, uninjured M were given the following 4 treatments in mixed order: 1) ice (in the form of crushed ice); 2) wrap (a 3" ACE wrap); 3) the wrap over the ice; and 4) the wrap under the ice. These treatments were applied to the right ankle of the Ss with the foot blood flow meas through venous occlusion plethysmography for 20 min and then for 30 min following the removal of each modality. All the treatments caused some reduction in blood flow both during treatment and post-treatment, but the reduction seen with the wrap and the wrap under the ice was sig when compared to the reduction seen with ice and the wrap over the ice. However a reactive hyperemia was often noted when the wrap was removed. The results from this study show that a wrap is more effective at decreasing blood flow than the ice and that the wrap under the ice was the best modality to both decrease blood flow and to minimize the reactive hyperemia.

121. SHULTZ, H.M. The implications of a Pauline anthropology upon physical activity. M.S. in Exercise and Sport Science, 1988, 363 pp. (R.S. Kretchmar)

The purpose of this study was to examine the Apostle Paul's view of man and then determine the implications for participation in selected physical activities. This entailed evaluating if Paul's view of man could be considered dualistic, holistic, monistic or trichotomistic. It also involved determining if Paul had a depreciated view of the body. Using redemptive-historic method of interpretation a word study was conducted evaluating Paul's use of the terms soul, mind, heart, spirit, flesh, and body in his New Testament epistles. The results of this word study revealed that Paul did not denigrate man's physicality and that his view of man is holistic. Based upon Paul's view of man the entire person participates to one degree or another in every type of human activity. Activities which have traditionally considered to be "physical" have their own intrinsic value and do not need to be viewed suspiciously as inferior forms of human expression. It was also determined that "physical" activities do not need to be legitimized by a "higher" spiritual or moral rational.

122. SIDAWAY, B. Programming time as a function of the accuracy demand and number of movement parts of a rapid response. Ph.D. in Exercise and Sport Science, 1988 , 158 pp. (R.W. Christina)

This investigation examined the effect of the subtended angle and the number of movement parts of a response on programming time. Using a 3x3 (Subtended Angle x Number of Movement Parts) factorial design, 12 M Ss participated in 9 conditions. With a hand-held stylus, Ss were required to strike either 1, 2, or 3 circular targets as rapidly and accurately as possible. A simple RT (SRT) paradigm, utilizing an auditory stimulus, was employed. The 9 response conditions were randomly assigned across 3 days of testing. Ss performed 60 trials in each response condition, the last 20 being statistically anal. Premotor time and SRT were unaffected by the no of targets to be hit, but both increased as the subtended angle of the response decreased. There was a tendency for motor time to lengthen with a decrease in the response subtended angle and with an increase in the number of mvmt parts in the response. Similar trends were evident for all meas of mt with mt increasing as response subtended angle decreased or as the number of mvmt targets to be hit increased. The discussion proposes a neural network model to explain how increased response accuracy demand constrains motor system output and increases programming time.

123. STREET, G.M. Kinetic analysis of the V1 skating technique during roller skiing. Ph.D. in Exercise and Sport Science, 1988, 128 pp. (R.C. Nelson)

4 coll M skiers performed the V1 skate on instrumented poles and roller skis up a 7° hill at 3 target velocities of 2.5, 3.25 and 4 $m \cdot s^{-1}$. Magnitudes of the poling forces and skating forces were meas with a remote computer and their orientations with 3 dimensional cinematographic techniques. The aver peak resultant poling force was 0.45 bw, which was 2-3.5 times larger than those reported for the diagonal stride. The component force data revealed that the major function of the skis was to support the wt of the S and that the main role played by the poles was propulsive. The skis also provided the major impulse for changing the lateral momentum of the skier. The results in the present study clearly demonstrated that the upper body plays a substantially more important role in skating. This fact supports the contention that skiers must be highly skilled in poling and well trained in the upper body if they are to be successful in the new skating techniques.

124. TARMAN, J.R. An assessment of sports information departments policies and procedures concerning in-season football player media interviews in Division 1-A institutions. M.S. in Exercise and Sport Science 1988, 120 pp. (R.J. Sabock)

A total of 104 NCAA Division 1-A Sports Information Directors/Directors of Media Relations served as the study population and were sent a questionnaire developed by the investigator. A frequency anal was performed on all the questionnaire items. Survey results indicated football player media interviews were an important topic among the Ss surveyed. Most in-season football player interview policies and procedures were made by both the Sports Information Director and Head Coach. Most sports information departments did not try to limit which football players could be interviewed, and all but one allowed freshmen to be interviewed. Game week interviews were conducted at numerous athletic and university facilities as well as media gatherings and usually took place Mon through Thur. Most schools allowed football players a "cooling off" period before post-game interviews start and also tried to have a media only period in which only approved media representatives and/or official univ personnel could be in the media or locker room. The majority of respondents revealed F media members were either allowed in the locker room at the same time as M media members or special arrangements were made for interviews.

125. TRUNZO, R.L. American Anglo-Saxon domination of the 1896 Olympic Games. M.S. in Exercise and Sport Science, 1988, 238 pp. (R.A.Smith)

On Apr 5, 1896 (by the Western calendar), the first international revival of the Olympic Games occurred in Athens, Greece. It had taken Pierre de Coubertin two Sorbonne Congresses and a lifetime of work to bring the international and modern Games to fruition. Princeton professor William M. Sloane was responsible for fielding a suitable American Olympic team. Through many trials, but with the American dev history of international sport supporting him, Sloane helped bring together an American Anglo-Saxon team of 13 members. The team composition reflected the dominant economical, social, and political currents within American 19th century society. This work examines the history of

American international sport leading up to the Games, the efforts of Coubertin to reestablish the Games, and Sloane's efforts to form an American Olympic team. It chronicles the American athletes' sojourn in Athens and their triumphant return to the States. This work concludes with an examination of American attitudes of Anglo-Saxon superiority and how the American victories in Greece supported both nationalism and imperialism.

126. WAGNER, R. An investigation of corporate sponsorship of women's sports events. M.S. in Exercise and Sport Science, 1988, 114 pp. (R.J.Sabock)

A questionnaire was developed by the investigator to examine corporate sponsorship of women's sports events, and possible reasons for a lack of greater financial commitment. It was then edited and pilot tested by 2 independent sports marketing consulting firms. Changes were made based on their recommendations. A cover letter, questionnaire, and stamped, envelope were sent to 132 corporations identified as being sponsors of sport. Of these corporations, 67 were identified as primary sponsors of M's events, and 65 were identified as sponsors of F events. The return rate for both gps was 42%, or 55 out of 132. A profile of the respondents in each gp was dev through descriptive statistics, and a frequency distribution. Each item was anal by a t-test, and a 1 way ANOVA to identify diff between the 2 gps. The study revealed small diff between the sponsors of M's sports events and those of F's sports events.

127. WILKINS, V.L. Siblings' joint leisure activities and their correlates in children with and without mental retardation. Ph.D. in Recreation and Parks, 1988, 144 pp. (S.M.McHale)

This study examined interrelationships between sibs' JLA and both evals of sib relationships and older sibs' well-being in 58 families with and without children with MR (29 in MR gp; 29 in comparison gp) and with at least 1 older sib with no identified disability. Younger and older sibs, M and F, ranged in age from 3.4 to 14.3 and 8 to 15.4 yr respectively. Data were collected over 5 mon during the 1985-86 school yr using home and telephone interviews. Dependent meas were the extent, nature, social context, and initiator of sibs' JLA. MANOVA procedures revealed no sig diffs in sibs' JLA as a function of gp membership and gender of older sibs. There were sig diffs in the nature and initiator of sibs' JLA as a function of gender of dyad diffs. Correlational anal revealed associations in the nature and social context dimensions of sibs' JLA and both older sibs' well-being and evals of sibs relationships. Anal revealed that sibs spend an aver 2 hr/day engaged in JLA in both gps. Play was associated with pos interactions in the MR gp, while outings were associated with less pos interactions in both gps. Outings were associated with higher levels of social acceptance and less anxiety and depression in the comparison gp, but only in social contexts involving others.

128. WILSON, A. The development of a preliminary marketing process for an environmental center. M.S. in Recreation and Parks, 1988, 105 pp. (J.E. Elliott)

The purpose of this study was to dev a preliminary marketing process for an environmental center. Focus gp interviews were conducted with 3 market segments and the staff of an environmental center. The market segments included members of the Center, non-member parents with school age children, and non-member elderly. Each of the market segments were asked questions concerning their image of environmental centers and the facilities and prog that would attract them. The staff interview investigated their perception of user and non-user image of environmental centers and what the staff believed were the needs of these gps. The questions concerning image were compared and contrasted. One finding of this investigation was the term "environmental-center" confused non-users. They believed an environmental center was a place for political activism. Users believed an environmental center was a place for relaxation. The staff mainly viewed the Center in terms of its educ purposes. Responses to the questions concerning prog offerings and facilities were compiled and reviewed by 2 panels. The first panel was comprised of 3 Center directors and the second panel was 3 independent environmental professionals. Each item was rated on a 7 point Likert scale in terms of desirability and feasibility. The coordinates for each item were then plotted on a 4 quadrant grid. The grid was found to be a useful method for anal the information. The results suggest that when making decisions, the staff needs to investigate market demand. In addition, the staff may find it helpful to utilize colleagues within the field to lend new insight to the situation.

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NEW BRUNSWICK, NEW JERSEY

129. VALVERDE, E. Dance as recreation: A comparison of college students' perceived values in dancing. Ed. D. 1987, 229 pp. (H. Rosenberg)

Although both communal and performing arts dance forms have historical roots in communal dance, they have evolved into 2 distinct types of dance. Dancers generally gravitate toward either communal dancing or performing arts dancing. No published studies report investigation of reasons for this segregation of dancers' interests. This study examines how rec participant choices vary due to contrasting perceptions of the benefits to be realized from dancing. The hypothesis is: response characteristics of Ss who favor participation in communal dance forms will sig diff from the response characteristics of those who favor participation in performing arts dance forms. 584 survey responses of M and F coll and univ students between the ages of 17-28 who regularly participate in dancing activities were scrutinized. The questionnaire contained 91 multiple choice and Likert-type items. Responses were assigned to 1 of 2 gps based on each S's specified "favorite" dance form. Those favoring freestyle/party-type, slow folk, square, or ball- room dancing were assigned to gp 1. Responses favoring ballet, tap, or jazz were assigned to gp 2. Frequencies were tabulated and chi square anal was performed on the categorical variables to compare responses of the 2 gps. Gp M and summary statistics were computed, and discriminant anal and stepwise discriminant anal were applied to quantitative data. Variables which discriminate between communal and performing arts dancers are gender, instructional background, desired frequency of participation, perceived values in the area of social interaction, pursuit of health and fitness, mvmt discipline, and age. Areas of similarity are use of dance for emotional catharsis and release of pent-up energy, appreciation for the aesthetic values in dancing, and pos attitude toward perceived ability in dancing. Results of this study provide insight into the appeal of the 2 types of dancing. Tchrs and admin may use the information to shape curr offerings in optional PE and dance prog, and to improve teaching techniques in dance classes.

SLIPPERY ROCK UNIVERSITY **(C.Clinger)**
SLIPPERY ROCK, PENNSYLVANIA

130. CORNELL, M. The effects of a 12-week cardiovascular training program on selected physiological and psychological parameters in a group of cardiac patients. M.S.in Physical

Education/Exercise Science, 1987, 60 pp. (J.Brannon)

The data used in this study were obtained from pre and post test evaluations conducted at Bio-Energetiks Rehabilitation and HE Maintenance Clinics located in Pittsburgh, PA. Ss included 9 individuals who had suffered a MI and/or had undergone CABG surgery, and participated in a 12 wk CV training prog, 3 times a wk for 45 to 60 min durations. Ss were chosen for this study on the basis of 75% compliance to the training prog. The data were anal through the use of the t-test for dependent samples. In terms of the physiological variables studied, a sig increase in PWC, expressed as METS was noted ($P < .05$); % BF was sig reduced ($P < .05$) and BW decreased, but this finding was not statistically sig. Sig diff were not found in the psycho parameters of anxiety and depression levels.

131. ELSTRODT, S.K. Settings in which high school students learn selected Physical Education activities. M.S.in Sports Administration, 1988, 34 pp. (W.P. Hotchkiss)

The study included 184 M and F freshman from Slippery Rock Univ. The students were selected by means of systematic sampling and were surveyed regarding whether the activities they learned were taught to them in PE classes, from outside agencies, or in informal, unstructured settings. The activities recorded were tallied and ranked. The data were anal using a chi square statistic at the .05 level of confidence. The study found that the majority of students is learning most activities outside of structured PE classes, with the exception of the traditional activities of basketball, baseball, softball, football, and volleyball. The study also found that field hockey, golf, Judo, lacrosse, life-saving, new games, orienteering, and wrestling were, often times, never learned by the students: indicating that the schools are teaching the traditional activities, and not offering a wide variety of exp.

132. HEILMAN,L.L. Factors influencing college selection by female basketball players participating in the Pennsylvania State Athletic Conference. M.Ed. in Athletic Administration, 1988, 72 pp. (J.L.McKeag,Ph.D)

13 out of the possible 14 F's basketball teams in the PA State Athletic Conference responded to a questionnaire directly related to factors that influence a player's decision to attend a particular univ. The students-athletes indicated whether a factor was very influential, somewhat influential, or not influential to them when choosing a school. The student-athletes across the conference responded similarly to 12 factors and diff to 12 factors as indicated by the chi square test of independence. Calculated rank ordered percentages indicated the top 3 factors of the availability of career choice, acd prog at the univ, and distance from home as being very influential in choice of univ matriculation. The 3 least influential factors were the alumni interest and involvement, game attendance, and the national ranking of past basketbhall teams.

133. MCGILL, S.L. Development of a wellness program model for small liberal arts colleges. M.S. in Physical Education, 1989, 70 pp. (W.P.Hotchkiss)

The review of lit included investigation of wellness prog in coll, univ, and corporate settings. An examination was rendered in the areas of wellness assessment questionnaires, dimension of wellness, and target prog areas within wellness prog. Suggestions for planning and dev were evolved. Theories and concepts for implementation of a wellness prog were incorporated. The conclusion detailed methods of prog evaluation and participant compliance. This comprehensive wellness prog model should max the successful implementation of a wellness prog for small liberal arts coll.

134. PAPA, R.R. The effects of selected types of musical stimuli upon muscular strength and endurance performance of college age athletes. M.S.in Exercise Science, 1988, 29 pp. (G.Pechar)

33 volunteers from the Slippery Rock Univ Track and Field Team were tested for muscular strength and endurance performance under the conditions of stimulative, sedative and a non-musical environment. The 3 testing periods were completed in a 1 wk period. An ANOVA for dependent samples was used to investigate the diff in muscular strength scores among the 3 types of musical stimuli. A Scheffe's Multiple Comparison test was used to investigate which of the m diff. A Friedman ANOVA for dependent samples was utilized to investigate the diff in muscular endurance scores among the 3 types of musical stimuli. It was concluded that muscular strength scores increased sig ($p < .05$) when Ss listened to the stimulative music condition as compared to the sedative and non-musical conditions. There was no sig diff in the muscular endurance performance capacities of the Ss between the stimulative, sedative and non-musical conditions.

135. RHOADES, C.L. Player buying patterns of selected golf equipment at daily fee golf facilities in the Pennsylvania counties of Crawford and Mercer. 65 pp. (C.D.Clinger)

The purpose of this study was to investigate player buying patterns of selected golf equipment at the daily fee golf facilities in the PA counties of Crawford and Mercer. A survey was admin for 1 wk at the 10 cooperating daily fee golf courses in the geographic area of Crawford and Mercer counties. The responses from the survey were reported and compared to national norms when available. The results were presented in the form of bar graphs and were as follows: 48.73% of the players preferred Titleist golf balls, 26.11% of the players preferred Wilson golf clubs, 32.97% of the players preferred Titleist golf gloves, 38.35% of the players preferred Foot Joy golf shoes, 44.09% of the players preferred Titleist golf bags, and 59.24% of the players bought the majority of their equipment at their local Pro Shops.

136. ROTHENBERGER, D.L. Relationship between selected physiological parameters and swimming performance in children. M.S. in Exercise Science, 1988 (G.S.Pechar)

45 M and F competitive swimmers (9-10 yr) underwent meas and testing for body composition (bc), muscle strength (ms), muscle endurance (me), CV efficiency (ce), and flexibility (f). The r results indicated that there were 7 variables [ht, bf, sit-ups (su), pull-ups (pu), long jump (lj), dash (d), and mile runs (mr)] with a sig relationship to sprint performance and 4 variables (pu,lj, d, and mr) with a sig relationship to distance swim performance. Multiple regression was used therefore to investigate whether 2 or more of the variables were simultaneously affecting swim times. Fitting a multiple regression using the variables indicated only wt and mr are sig to predict swim times for sprinters and only the mr is sig to predict swim times for distance swimmers. There was a high degree of r among the potential independent (predictor) variables for multiple regression. Since the potential predictor variables were r, Factor Anal was used to generate a new set of variables or "factors" which are combinations of the correlated variables. Factor 1 includes the lj, d, mr, and su which was named for power and endurance; factor 3 includes ht

and wt which was named for body structure; and factor 3 includes bf, pu, and f which was named physically related strength. This study revealed the 3 new factors to be sig at p= .05 for the 25 yd swim and only the first factor, power and endurance, to be sig for the 200 yd swim. These results indicate that the 200 yd swim is a function of factor 1 (power and endurance) and the 25 yd swim is a function of all 3 factors (power & endurance, body structure and physically related strength). Using Cluster Anal showed that there were not 2 diff classifications of competitors tested (sprint or distance swimmers). These selected characteristics lack cohesiveness to determine a sprint or distance swimmer for this particular age gp.

SOUTH DAKOTA STATE UNIVERSITY (J.E. Lidstone)
BROOKINGS, SOUTH DAKOTA

137. JONES, R. The effect of participating in a wellness program on cardiovascular function and self-concept in middle aged men and women. M.Sc. 1988, 120 pp. (J.E.Lidstone)

49 M and F participated in the study. The exp gp consisted of 24 Ss who enrolled in the Brookings Wellness Prog between June 1, 1987 and February 19, 1988. 25 matched control Ss who were similar in age and lifestyle were also recruited. The exp and control gps were pre and posttested to determine initial and final values for VO_2 max using 2 submax tests, the bicycle ergometer and Rockport Fitness Walking Tests. The Tennessee Self Concept Scale (TSCS) was admin during pre and posttest sessions and meas the change in overall self esteem (Total Positive), Self Satisfaction, Physical Self, Personal Self, and Social Self. Exp gp S's participated in the Brookings Wellness Prog for 16 wk. Control gp S's maintained their present lifestyle. 2 x 2 factorial ANOVA's were performed on the amount of pretest to posttest change which occurred. Sig diff between the exp gp and the control gp

were observed for VO_2 max on the bicycle test, Total Pos, Self Satisfaction, Physical Self, and wt change ($P \leq .05$). The exp and control gps did not diff in terms of the degrees of change that occurred in VO_2 max as meas by the Rockport Walking Test, Personal Self, and Social Self ($P > .05$) It was concluded that participation for 16 wk in a wellness prog can sig affect certain aspects of health-related fitness and self-concept.

138. KONRAD, P.C. The effect of participating in a fitness and lifetime skills program on attitude toward physical activity. M.Sc., 1988, 130 PP. (J.E.Lidstone)

The purpose of this investigation was to determine if student attitude toward physical activity changed following exposure to one semester of fitness and lifetime skills instruction. The study specifically examined attitude diff and change by gender and class level for 343 coll aged M and F. Ss for the study were selected via stratified random sample of courses offered within the PE 100 Fitness and Lifetime Skills Prog. Attitude meas were obtained utilizing Kenyon's Attitude Toward Physical Activity and Body Image Inventory (1968c) admin in a test-retest procedure. A 2 way ANOVA revealed sig pretest diff for gender and class level ($P \leq .05$). M and F diff sig on (a) pursuit of vertigo, (b) aesthetic exp, (c) catharsis, and (d) ideal body image. Freshmen/sophomores held sig diff attitudes toward physical activity (ATPA) than junior/seniors for (a) social exp, (b) pursuit of vertigo, (c) catharsis, and (d) overall ATPA. Repeated meas ANOVA's were performed to determine if attitudes changed sig from pretest to posttest. Findings indicated a sig increase in ATPA as a social exp, health and fitness, aesthetic exp, and catharsis. Also, sig class level interactions were observed on the ascetic, catharsis and perceived body image dimensions. It was concluded that attitudes toward certain dimensions of physical activity can change following participation in one semester of fitness and lifetime skills instruction.

139. KORTEMEYER, R.L. The nature and meaning of recreation and leisure activities of rural retired males. M.Sc., 1988, 147 pp. (J.E.Lidstone)

A qualitative anal survey of rural, married M (n = 8) examined the nature and meaning of rec and leisure activity participation for retirees. The data were collected utilizing a structured interview guide and the McKechnie (1975) Leisure Activities Blank (LAB). The data were synthesized into individual case studies and anal for emerging themes and meanings. The findings suggested that these Ss were interested in a variety of rec and leisure activities, particularly those that involved nature and the outdoors. There was also a tendency to selectively participate with other persons. Participation in physically active rec has diminished for the Ss. There was strong sentiment against becoming involved with organized acti-vity prog such as those offered by the Senior Citizen Center. A hesitancy to dissociate from previous occupational and select volunteer involvement was also evident, however, overall volunteer work had diminished for these persons. Specifically, the Ss were actively involved in activities that interested them and had disengaged from activities that held less importance. The Ss evidenced a frugal and practical nature in their rec and leisure activity participation as well as in the equipment they purchased for these activities. Generally, they partook in activities that were readily accessible and available to them and that were valued in their particular social milieu.

SOUTHERN ILLINOIS UNIVERSITY **(L.A.Good)**
CARBONDALE, ILLINOIS

140. BROWN, R.A. An electromyographical study comparing two methods of inducing muscle hypertrophy in the upper arm. M.S. Physical Education, 1988, 135 pp. (L.A.Good)

30 right handed M, (19-25 yr), wt training beginners were randomly assigned to 1 of the 2 control gps or the 4 exp gps (which trained on alternate days 3 times per wk for 8 wk performing the "biceps" and "triceps" curl exercises). 2 exp gps performed isotonic exercise throughout the entire ROM referred to as the traditional method. 2 of the gps performed the fraction method, which system-atically varied the ROM. 1 gp from each exp method performed 4 sets of exercise and the other performed 8 sets. Pre and post-testing included: circumference of the upper arm meas with the elbow fully flexed and fully extended; isotonic strength (IRM) of the elbow flexors and extensors; and isometric strength of the elbow flexors at 120°. An EMG was used to record the electrical activity of the elbow flexor and extensor muscles during the first and the last training sessions. A max voluntary isometric contraction was performed to determine the 80% and 100% tension levels. The spike action potentials recorded during the isotonic methods were counted at both levels. An electrothermometer was used to meas the biceps brachii surface heat. An ANCOVA revealed no sig diff (p > .05) between the gps on the pretests. The EMG recordings were statistically anal using a multiple linear regression of the General Linear Model of the Statistical Anal System. Results indicated that all exp gps were sig greater than the control gps. The fraction method caused all of the variables tested to increase sig greater than the traditional groups (p < .05).

141. DVORAK, J.K. Perceptions of need satisfaction for personnel in campus recreation. M.S.in Education, 1988, J. Thorpe)

Job perceptions with respect to need satisfaction for the staff members at the Student Rec Center were studied. Ss were 39 staff members from the Student Rec Center. Data were collected through an opinionnaire devised from Porter (1961). Dependent variables were social need, security need, esteem need, autonomy need, self-actualization need, pay and being-in-the-know. Independent variables were types of jobs: professional staff (PS), grad assistants (GA), secretaries and 1 ticket control manager (SEC + TCM), pool tenders (PT) and custodians (CUS). Data were anal through percentages, r, ANOVAs and the Duncan Procedure if F was sig. ANOVAs were tested at the .10 level and the Duncan at the .05 level. Sig ANOVAs for the need subscale were social, esteem, autonomy, and self-actualization. The job types sig to those needs were: 1) social need; GA > PS, PT, SEC + TCM and CUS; 2) esteem need; PS > GA > SEC + TCM< PT and CUS; 3) autonomy need; PS > GA, SEC + TCM > PT and CUS; 4) self-actualization need; GA, PS and SEC + TCM > PT and CUS. The r revealed that self-actualization with autonomy and autonomy with esteem were highly correlated while social with security were low predictors and possible independent aspects of the job situation. Data from other univ were not available. Percentages indicated that persons who were staff members at the Student Rec Center were reasonably young, inexp and relatively low paid.

142. GAUTHIER,H.L. Sources of income in Division IAA athletic departments. Ph.D. in Education, 1988, 131 pp. (J. Thorpe)

Sources of income were studied. Ss were 86 NCAA Division IAA athletic depts, and data were collected through a questionnaire. Data were anal through frequencies, m, 1-way ANOVAs, the Duncan procedure, and a step-wise regression anal. DVs were: ticket sales, student fees, donations, state funds, other revenue, and total income. Independent variables were: type of institution, population of the comm, enrollment of the institution, 30 variables of ticket sales, 20 variables of fund raising, and promotional ideas. A sig ANOVA indicated that institutions with enrollments of 15,001-20,000 raised the most revenue through ticket sales. Sig ANOVAs indicated that public institutions, institutions with enrollments of 15,001-20,000, institutions with enrollments of more than 25,000, and institutions in comm of 25,001-50,000 had the most revenue from student fees. Sig ANOVAs indicated that private institutions and institutions with enrollments of 15,001-20,000 had the most revenue from donations. A sig ANOVA showed that the public institutions raised more revenue than the private institutions through state funds, while private institutions raised more "other revenue." A sig ANOVA indicated that institutions with enrollments of 15,001-20,000 had the most total income. Ticket sales was the greatest predictor of total income, and all 5 sources of revenue were sig predictors. 27 characteristics of ticket sales were associated with prog with the greatest revenue from the sale of tickets. 17 characteristics of fund raising were associated with the greatest revenue from donations.

143. TIERNEY, J.E. Diffusion of sport psychology ideas and techniques into the elite U.S. swimming community. M.S. in Education, 1988, 101 pp. (E. Blinde)

Despite the increased use of sport psych in athletics during the past 2 decades, elite swim coaches in the U.S. are not fully utilizing the available resources according to the Executive Director of the American Swimming Coaches Assoc. The purpose of this study was to examine the process of diffusion of sport psych ideas and techniques into the swimming comm. Specifically, it examined the relationship among exposure to receptivity of, and implementation of sport psych by elite coaches and then determined reasons why sport psych was not being fully utilized. Ss were ASCA certified Level V swimming coaches. Questionnaires mailed to 165 Ss had a return rate of 57.6%. Results indicated a low to moderate r (.37) between exposure and receptivity, suggesting that increased exposure does not necessarily lead to increased receptivity. Major hinderances to the receptivity of coaches included lack of resources from their organizations. Receptivity and implementation correlated at a moderate to high level (r = .54). Given the size of this r, many other factors influenced the rate of implementation. Lack of qualified consultants, economic constraints, and time constraints were key factors. Results indicated that coaches are receptive and willing to implement sport psych, but are frequently restricted by structural factors.

SPRINGFIELD COLLEGE (J. Genasi)
SPRINGFIELD, MASSACHUSETTS

144. BRASSARD, M. The effect of the airstirrup and a conventional method of strapping the ankle on agility and vertical jump performance. M.S. in Sports Medicine, 1988, 84 pp. (C.Redmond)

The Ss for this study were 30 M HS students. The Ss performed the Right Boomerang Agility Test and the Sargent Vertical Jump Test under 3 conditions: airstirrup on both ankles, prophylactic strapping on both ankles, and no external support on the ankles. The Ss randomly selected the order of the conditions for testing and also the order of skill testing under each condition. Each S performed 3 trials of each test under each condition. The m of each S's 3 agility scores under each condition and the b est of each S's 3 vertical jump scores under each condition were used for anal. 2 repeated meas ANOVA procedures were performed to compare the scores of the Ss for the 3 conditions of the 2 tests. No sig (p > .05) diff were found among the scores for either test. Therefore, neither the wearing of the airstirrup on both ankles nor the use of prophylactic strapping on both ankles had any effect on the Ss' performance of the Right Boomerang Agility Test or the Sargent Vertical Jump Test.

145. CHACON, M.E. The relationship of trunk and hip muscle strength to low back pain. M.S.in Health Science, 1989, 88 pp. (B.Jensen)

The purpose of this study was to determine which of the following variables were the best combination of predictors for low back pain (LBP) level of disability: isokinetic strength of trunk flexors, isokinetic strength of trunk extensors, isokinetic strength of hip flexors, isokinetic strength of hip extensors, wt, age, and ht. A sample of 33 F adults from Springfield Coll, Springfield, MA was used. The sample was a heterogeneous mixture of individuals with and without LBP. The Oswestry LBP Disability Questionnaire (Fairbank et al., 1980) was used to determine LBP level of disability. A Cybex TEF Unit was used to meas isokinetic strength of trunk and hip flexor and extensor muscles. The protocol consisted of 3 diff speeds, 60, 90, and 120°/s. The wt, age and ht of the Ss were recorded prior the muscular testing. The hypotheses were tested through repeated meas and stepwise multiple regression anal. The researcher found that the m isokinetic strength scores for trunk extensors at 60 and 90o/s were higher than the m isokinetic strength scores for trunk extensors at 120°/s. There were no sig diff in the m isokinetic strength for trunk flexors, hip flexors, and hip extensors. 5 predictor variables: isokinetic strength of trunk extensors average speed, isokinetic strength of trunk extensors at 90 °/s isokinetic strength of trunk extensors at 120°/s, and hip flexors at 60°/s and wt were found to be sig ($p < .05$) predictor variables of LBP level of disability.

146. DALY, T. The relationship between muscle fiber type and serum lactate dehydrogenase. M.S. in Exercise Physiology, 92 pp. (R.Barkman)

Ss for this study were 30 M and F , aged 18-50, from the Greater Springfield, MA area. A blood sample, taken by a trained phlebotomist, and a muscle biopsy, performed by a Board Certified Surgeon under standard outpatient procedures, were taken from all the Ss. The blood sample was centrifuged and the serum LDH was fractionated electrophoretically. The resultant cellulose acetate strips were scanned with a densitometer and the isoenzyme subunit ratios LDH-H/Total LDH, LDH-M/Total LDH, and LDH-H/LDH-M were determined. The muscle samples were taken from the gastrocnemius of the right leg. The samples were frozen in liquid nitrogen. Serial sections were cut and slides were made. The slides were histochemically prepared to show myosin ATPase active and a photomicrograph of the field of view was taken. The muscle fiber type was determined by counting the number of slow-twitch (ST) and fast-twitch (FT) fibers and by meas the area of the ST and FT fibers from the photomicrograph. A muscle fiber type ratio of ST/FT was calculated for both fiber type methods. The LDH isoenzyme subunit ratios were correlated to the muscle fiber type ratios using a Pearson Product Moment r. A sig (p < .05) relationship was found when LDH-H/Total LDH and LDH-M/Total LDH were correlated to the muscle fiber type determined by counting the no of muscle fibers. Conflicting results were found when LDH-H/LDH-M was correlated to muscle fiber type determined by counting the no of muscle fibers. No relationship (p > .05) was found when the LDH ratios LDH-H/Total LDH, LDH-M/Total LDH, LDH-H/LDH-M were correlated to the muscle fiber type ratio determined by the areas of the fibers.

147. DONOVAN, C. Health attitudes and their relation to compliance and measured cholesterol

levels. M.S. in Cardiac Rehabilitation, 1988, 108 pp. (J.Genasi)

16 CV patients with serum chol levels of $\geq$ 199 mg.dl^{-1} participated in this study. Each participant completed the Miller Attitude Scale and a 3 day diet record upon entrance to a cardiac rehab prog. All were counseled on the American Heart Assoc guidelines for chol and saturated fat intake. A second serum chol level, a second diet record, and the Miller Health Behavior Scale were collected 8 wk later. The Pearson Product Moment r was used to assess the relationship between health attitudes, dietary intakes, health behaviors, and serum chol levels. There was sig r found between the Miller Attitude Scale and dietary behaviors at the time of its assessment ($p < .05$). The Miller Health Behavvior Scale was sig correlated with the dietary behaviors at the time of its meas and the absolute change in dietary lipid intakes respectively ($p < .05$). No other sig r were found.

148. ENGELHARD-COLTON, N. *The effects of hypoxia and oral contraception on respiratory parameters*. M.S. in Health Science, 1989, 100 pp. (S. Siconolfi)

The combined effects of hypoxia and oral contraception (OC) on respiratory parameters has not been determined. Certain respiratory parameters were meas in 10 OC users and 10 OC non-users (ages 18-35) during a modified Cunningham treadmill test at Springfield Coll. The Ss were rec athletes exercising aerobically at least 3 times per wk for at least 30 min a bout. The m $\dot{V}O_{2MAX}$ was 43.77 ml kg^{-1} min^{-1} for the non-users and 43.23 ml kg^{-1} min^{-1} for the users. There was no sig ($P > .05$) diff in body mass index or yr of training between the gps. A normoxic and hypoxic (12.8% O_2) test was given to each gp within the first 13 days of the menstrual cycle. A 2 x 2 ANOVA was used to determine diff in times to $\dot{V}_E/\dot{V}O_2$ and $\dot{V}_E/\dot{V}CO_2$ breakpoints between both gps in normoxic and hypoxic conditions. A 2 x 2 x 3 ANOVA was used to determine diff in breathing frequency (F_b), ventilation ($\dot{V}_E$), and aerobic economy ($\dot{V}O_2$/WR) at the $\dot{V}_E/\dot{V}O_2$, $\dot{V}_E/\dot{V}CO_2$ and max physical working capacity breakpoints. No sig ($p > .05$) diff were found in times to $\dot{V}_E/\dot{V}O_2$ and $\dot{V}_E/\dot{V}CO_2$ in relation to OC use and O_2 conditions. No sig ($p > .05$) diff were found in F_b, $\dot{V}_E$, and $\dot{V}O_2$/WR in relation to OC use and O_2 conditions. $\dot{V}O_2$/WR approached sig ($p = .066$) by decreasing in OC users under hypoxic conditions.

149. FINKEL, R. A revision of the Heart Disease Locus of Control Scale. M.S. in Health Science, 1988, 221. (B.Jensen)

The researcher undertook an initial revision of the Heart Disease Locus of Control Scale (O'Connell & Price, 1985) as a step in developing an instrument of enhanced construct validity. 15 of the original 20 items were retained. An additional 157 items were compiled. Content validation was achieved for 102 of the 172 items. Responses to the 102 items along a 6-point Likert continuum were solicited from app 1,000 Ss of whom 292 did respond. The respondents were evenly divided between F and M, and were, on average, 34 yr of age, with 17 yr of educ. The responses were subjected to factor anal by all of the combinations of 3 methods of extraction and 4 methods of rotation. The researcher noted a striking convergence of results from these procedures. 17 of the items failed to correlate at the .40 level with any of the factors and were discarded, as were an additional 6 items which appeared to be ambiguous. The 79 items which remained formed a simpler structure of 4 factors. The researcher interpreted 3 major factors as representing the constructs of 'Self', 'Chance', and 'Powerful Others'; and a minor factor as representing the construct of 'Self-efficacy'. The remaining 79 items were divided into 4/subscales on the basis of their factor grouping and were examined for internal consistency and homogeneity. The results from these anal appeared to be satisfactory and the 79 items were, therefore, retained for further testing. On the basis of this study it would appear that the construct of a multidimensional locus of control specific to CV HE is useful to explore, and that it may be accessed through the application of a multiscaled instrument dev through the repeated validity testing of a large pool of items proposed to be suitably referent.

150. GORMAN, J.J. Physiological responses to mental stress in borderline hypertensive patients. M.S.in Cardiac Rehabilitation, 1987, 122 pp. (S.Siconolfi)

Ss were 40 borderline hypertensive M and F over the age of 59 from 3 senior centers. The purpose of the study was to determine the effect of current activity and fitness levels on BP and HR responses to mental stress. All Ss completed medical history and physical activity questionnaires, a max exercise test, and a mental stress test. Based on the Kcal scores for the activity questionnaire and the $\dot{V}O_{2MAX}$ scores for the exercise test, the Ss were separated into 4 distinct gps: high/active/high fit, low active/high fit, high active/low fit, low active/low fit. 2 way ANOVA comparing m Kcal and $\dot{V}O_{2MAX}$ scores of the gps confirmed that 4 distinct gps were formed. 2 way ANOVA were also used to anal the m respiratory quotients and max HR from the exercise test, m cognitive abilities on the mental stress test, and m ages of the gps to determine whether there were any confounding factors that might affect the results. None were found. Resting BP were taken prior to any testing. SBP, DBP, and HR responses to the mental stress were recorded at the following times: protest, peak mental stress, m mental stress, and posttest. 2 way ANOVA with repeated meas were used to anal the data. No diff (P > .05) were found among the gps for DBP or HR responses to mental stress. The high fit gps had a lower (p < .05) resting SBP than that of the low fit gps. The high fit gps had a greater (p < .05) SBP reactivity to mental stress than that of the low fit gps. However, no diff between the high and low fit gps was apparent when reactivity was meas from pretest to peak mental stress.

151. GROGAN, J. The measurement of perceived-self and perceived-parental gender-role orientation. M.S. in Science, 1988, 133 pp. (M. Murray)

Ss for the research were 41 PE (25 M, 16 F) and 49 non PE (NPE) (13 M, 36 F) undergraduate volunteers. All Ss were admin the Self-Parent Identification Scale (SPIS) to assess perceived-self and perceived-parental gender-role orientations (masculine-typed, feminine-typed, androgynous, or undiff). Chi square tests were used to anal the data. No diff (p > .05) were found among the PE and NPE self-percep-tions of gender-role orientation. No diff (p > .05) were found among the perceived gender-role orientations of the parents, as individuals and as couples, of the PE and NPE majors. Sig diff (p < .05) were found among the SPIS trait endorsement patterns (Self-Mother, Self-Father, Mother-Father, Self, Mother, Father) of the PE and NPE majors. The PE and NPE Ss both identified with their fathers a sig (p < .05) greater no of times than with other identification patterns on the SPIS masculine traits. The PE gp endorsed the SPIS feminine traits for their mothers a sig (p < .05) greater no of times than the NPE gp.

152. HOPE, A. Psychosocial factors that discriminate among exercisers, occasional exercisers and nonexercisers. Doctorate in Physical Education, 1988, 187 pp. (B.Jensen)

Ss for this study were 410 F/M employees of a large, multinational corporation. The questionnaire was comprised of standardized scales, modified scales and original scales. The Ss were classified into 3 gps; exercisers, occasional exercisers, and nonexercisers based on the criteria of frequency, intensity and duration of physical activity. Each S's score was calculated for each of the following predictor variables: internal, powerful others, chance (MHLC); self-esteem; perceived estimation of physical ability; childhood sport interest; peer influence; spouse influence; access to facilities; health value; age; no of children; educ; income and body mass index. To test the 7 hypotheses the SPSSX DISCRIMINANT prog was used to anal the data. The 7 discriminant function anal were sig ($p < .001$). The stepwise discriminant function anal revealed 9 variables which sig ($p < .05$) discriminated between exercisers and nonexercisers. Exercisers, in order of magnitude, had greater peer influence, higher perceived estimation of physical ability, higher educ, fewer no of children, lower self-esteem, higher childhood sport interest, lower body mass index, lower income level and higher HE value than nonexercisers. The accuracy of classification was 82%. The stepwise discriminant function anal for F exercisers and nonexercisers produced 8 sig ($p < .05$) predictor variables. F exercisers had higher educ level, greater peer influence, higher childhood sport interest, greater access to facilities, lower self-esteem, lower body mass index, higher internal locus of control and higher income level than F nonexercisers. The accuracy of classification was 92%. The stepwise discriminant function anal for M exercisers and nonexercisers disclosed 7 sig ($p < .05$) predictor variables. M exercisers had greater peer influence, higher perceived estimation, fewer children, lower income, lower body mass index, lower HE value and higher educ than M nonexer-cisers. The accuracy of classification was 81%.

153. LEVY, E. The diurnal variation of physiological and psychological responses to mental stress. M.S. in Cardiac Rehabilitation, 1988, 86 pp. (S.Siconolfi)

Diurnal varition of SBP, DBP, HR, and QT interval are well documented. SBP, DBP, Hr, Qt interval and subjective units of distress (SUD) were examined in 11 cardiac patients (CP) prior to, at peak and m mental stress test (Stroop Color-word) at 9 AM and 9 PM in a counterbalanced order. Diurnal variation of interaction between time of day and stress times meas (pre-test, peak or m) was not noted in any variable. Peak responses for all variables were higher (p < .05) than m and pre-test values. M values were higher than pre-test in all cases except for DBP and QT interval. The lack of observed diurnal changes could be due to: 1) interaction with hypertension, age, and medication; 2) pre-test values could be elevated due to an anticipatory effect; 3) sampling times may not have been sensitive to diurnal variations. The results suggest that diurnal variations in these variables were not present at pre-test or during mental stress.

154. MAZZOCCA, A.D. The effect of a circuit weight training program followed by a detraining period on saliva cortisol and testosterone in males. M.S. in Exercise Physiology, 1989, 145 pp. (W. Considine)

Ss were 18 M fire fighter cadets. All Ss participated in the circuit wt training prog 3 times a wk for 9 wk. Following the 9 wk training prog, the Ss were randomly divided into a trained-detrained gp that did not participate in any strength training for 4 wk and a trained-maintenance gp that continue to train for another 4 wk. Upper and lower body strength tests (bench press and leg press) and upper and lower body endurance tests (multiple rep bench press and leg press) were admin prior to any training, at 9 wk (post-treatment), and at 13 wk (post-intervention). Saliva cortisol levels, saliva testosterone levels, and testosterone-cortisol ratios were determined prior to training, at 9 wk (post-treatment), at 11 wk (mid-intervention), and at 13 wk (post-intervention). ANOVA with repeated meas on 1 factor (times of meas), Newman-Keuls multiple comparison tests, and a simple effects test were used to anal the data. No diff ($\underline{p} > .05$) were found between the 2 gps in upper and lower body strength and endurance, saliva cortisol and testosterone levels, and testosterone-cortisol ratios. However, at 13 wk the trained-maintenance gp had a greater ($\underline{p} < .05$) upper body endurance value than that of the trained-detrained gp. There were diff ($\underline{p} < .05$) among M values for times of meas: pretest upper and lower body strength and endurance values were lower than the 9 wk and 13 wk values. The 9 wk saliva cortisol level was greater than the 11 wk and 13 wk levels and the pre-test level was greater than the 11 wk level; the 9 wk and 13 wk levels of saliva testosterone were greater than the pre-test and 11 wk levels; and the 11 wk testoster-one-cortisol ratio was greater than the 9 wk ratio.

155. MCNEIL, R. Injured and non-injured athletes: differences in self-concept. M.S. in Health Science, 1988, 102 pp. (C. Redmond)

The Tennessee Self-Concept Scale (TSCS) was admin to spring sport athletes at Springfield Coll prior to the start of the 1988 season. 14 injured athletes were admin a post-test self-concept scale throughout the season. At the end of the season 14 non-injured athletes were randomly selected and admin a post-test self-concept scale. An ANCOVA was utilized for the 9 subscales of self-concept, as meas by the TSCS, to compare the injured and non-injured athletes on the basis of adjusted post-test m self-concept scores. No diff ($\underline{p} > .05$)

were found between the 2 gps in any of the self-concept subscales tested.

156. REHBEIN, T. The effect of atrial natriuretic factor on blood pressure. M.S. in Exercise Physiology, 1988, 41 pp. (S. Siconolfi)

Ss for this study were 8 M Wistar rats who were injected with atrial natriuretic factor (ANF) or a placebo just prior to an acute bout of swimming (5 min) to determine the effect of ANF on post-exercise systolic hypotension. SBP was recorded at preinjection and at postinjection/postexercise times of 7, 10, 15, 20, 25, and 30 min. The expected postexercise hypotension was sig ($p < .05$) from min 10 to min 30, regardless of treatment. ANF poten-tiated the hypotension at 15 and 20 min. The reduction in BP may be related to decreased blood volume resulting from increased natriuresis due to the interaction of ANF and exercise during the recovery period.

157. VEGA DE JESUS, R. The effect of lactic acid on fat mobilization and utilization in trained subjects. M.S. in Movement Science, 1988, 69 pp. (S. Siconolfi)

10 trained (10-20 miles per wk or equivalent) M (ages 19-20) were studied at rest (R) and during 40 min of cycle ergometer exercise at work intensities equivalent to 2 and 4 $mMole \cdot l^{-1}$ of blood lactic acid (LA) to determine the effects of LA accumulation on free fatty acid (FFA) mobilization (MOB) and utilization (UTL). Blood samples were taken at R, 10, 20, 30, and 40 min of exercise and anal for presence of LA and FFA. Fat UTL was calculated from respiratory gas anal. The data (ANOVA) illustrated that there was no sig ($p > .05$) diff in fat MOB or UTl at exercise intensities equivalent to 2 and 4 $mMole \cdot l^{-1}$. However, fat MOB and UTL changed over time. FFA decreased ($p < .05$) from R to 10 min and then sig increased at

each time point. The 30 min value was not diff than R and 40 min was sig higher than R. Fat UTL was sig (P < .05) diff from R at 30 and 40 min only. No additional diff between times meas were sig. FFA UTL (30 min) preceded a sig elevation in FFA MOB (40 min). The data illustrate that FFA MOB and UTL are not affected in trained M by LA levels of 2 and $4mMole\cdot l^{-1}$ and that a metabolic demand is needed before sig mobilization of FFA will occur.

158. WOODS, J.A. The effects of an aerobic exercise program and dietary counseling on the blood lipid profile of post-menopausal women. M.S. in Health Science, 1988, 153 pp.(S. Siconolfi)

The effects of endurance exercise training and dietary counseling on high-density lipoprotein chol (HDL-C), total chol (TC) and the TC/HDL-C ratio were determined in 22 naturally post-menopausal, previously sedentary F ages 51-62 yr. Control gp members (n=11) were asked not to change their dietary or exercise patterns over the 3 mo study and a log of such activity was reported weekly. Members of the exercise/diet gp (ED, n = 11) underwent supervised exercise training for 30-60 min, 3 times per wk at 65-85% max HR and were counseled in the American Heart Association's low saturated fat, low chol diet, "An Eating Plan for Healthy Americans". The ED gp increased $\dot{V}O_{2MAX}$ 25% (p=.096) and the polyunsaturated to saturated fat ration (p=.05). The ED gp also lowered their intake of saturated fat (p=.012), chol (p=.05), and percentage of calories from fat (p = .028). BF was sig (p=.02) reduced in the ED gp in response to the intervention. Despite the success of the intervention in the ED gp the pre to post-intenvention levels of HDL-C (p =.068) and TC (p = .846) were not sig altered. There was however, a sig (p = .005) decrease in the TC/HDL-C ration in the ED gp but the control gp also sig (p = .047) decreased their TC/HDL-C ratio as a direct reflection of an increase in HDL-C (p = .001) which cannot be explained. Thus the potentially 'anti-atherogenic' benefits of exercise and diet modification on the blood lipid profile that are seen in studies with M are not as credible in post-menopausal F.

ST. CLOUD STATE UNIVERSITY (J. KELLY)
ST. CLOUD, MINNESOTA

159. ASKIM, K.L. Validity of whole-body bioelectrical impedance analysis in the prediction of percent body fat in women. M.Sc., 1988 (J. Kelly)

The present study was conducted to determine the validity of BIA in the estimation of densitometrically-predicted %bf, and to compare the prediction errors of relative bf values derived from BIA and skinfold meas predictive equations. The RJL Systems, Inc. BIA and the Jackson, Pollock, and Ward sum-of-3 skinfolds regression formulas were chosen for study. Body composition evaluation was performed on 90 F aged 18-32 yr. Body fatness, as predicted hydrostatically, varied greatly from 12-43%. The ANOVA revealed no sig diff between the densitometric m fat value (22.47 ± 5.27%) and that estimated by the BIA equation (22.75 ± 5.35%). The skinfold m (20.72 ± 4.41%) was sig diff ($p \leq 0.01$) than the criterion fat value. BIA and skinfold-predicted percent fat values were regressed against those predicted hydrostatically. This anal produced respective $r = 0.75$ and $r = 0.79$ for the BIA and Jackson, et al equations. The standard error of the estimate (SEE), total error (E), and coefficient-of-determination (r^2) were similar for the 2 prediction formulas: SEE = ± 3.50% vs ± 3.24%, E = ± 3.74% vs. ± 3.66%, and $r^2 = 0.56$ vs. 0.62 for the BIA and skinfold equations, respectively. It was concluded that, for the young F studied here, the Jackson, Pollock, and Ward equation is a slightly more accurate predictor of %bf over a wide range of values (12-43%) than is the BIA formula;

however, both formulas are equally stable predictors for the F who carries 17-27% fat.

160. HEIM, M.S. A swimming protocol for determination of individual anaerobic threshold. M.Sc. 1988 (J. Kelly)

The purpose of this investigation was to determine if a modified Stegman protocol was effective in assessing a swimmer's individual anaerobic threshold (IAT). The ability of the test protocol to assess the IAT training velocity of each swimmer was shown by utilizing a series of 14 two hundred yd swims allowing 10 sec rest between swims. 8 well conditioned M competitive swimmers volunteered for the study. Testing was done in the pool during free front crawl swimming using the test protocol of 4 four hundred yd stages swam at a designated velocity. VO_2 via backward extrapolation and blood lactate concentration via electrochemical anal were determined after each stage and during recovery after the final stage of the protocol. The series of 14 two hundred yd swims were conducted at the predicted IAT velocity and at the 0.066 $m \cdot s^{-1}$ faster than the first series. Blood lactates were taken during the short rest intervals between the 200 yd swims. The hypothesis stated that the test protocol would not be able to predict the IAT velocity for each swimmer within a velocity range of 0.066 $m \cdot s^{-1}$. The results of the investigation suggest that the test protocol was effective in determining IAT velocities within the velocity range stated. However, there was evidence to conclude that blood lactate during interval sets was not reflective of predicted lactate concentrations.

161. MOSENTHAL, T.M. Correlations of laboratory tests to distance running performance during a cross-country track season. M.Sc. 1988 (J.Kelly)

The purpose of this investigation was to meas blood lactate (La), running economy (RE), and $\dot{V}O_{2MAX}$ during a cross-country season and correlate these meas to distance running performance (DRP) in a 5000 meter race in order to determine which meas was the best predictor(s) of performance. 9 F who were members of the St.Cloud State Univ cross-country running team volunteered to participate in this study. The F participated in 4 submax treadmill tests during which blood samples and expired air were collected. The blood samples were anal for lactate concentration using a Roche model #640 lactate analyzer. Expired air was collected in meteorological balloons and anal for CO_2 and O^2 concentrations utilizing an Ametek CD-3A carbon dioxide analyzer and S-3A Electrochemistry oxygen analyzer. Running economy was the $\dot{V}O_2$ calculated at the second stage treadmill velocity of $3.80\ m \cdot ^{-1}$. Ss also participated in a pre-season and post-season max treadmill test during which expired air was again collected in order to calculate $\dot{V}O_{2MAX}$. The F ran 500 meters competitively 8 times throughout the season. Running times ($m \cdot s^{-1}$) were taken from races which coincided most closely with the admin times of treadmill tests. r between lactate when expressed as $mmol \cdot l^{-1}$, $\%\dot{V}O_{2MAX}$, or 4 $mmol \cdot l^{-1}$ velocity and DRP were sig ($p < 0.05$). The second submax stage lactate concentration and 4 $mmol \cdot l^{-1}$ velocity r most sig with DRP (-0.736 and +0.634 respectively). $\dot{V}O_{2MAX}$ and RE did not correlate sig with DRP ($r = + 0.441$; $p > 0.05$ and $r = - 0.282$; $p > 0.05$ respectively). A stepwise multiple regression anal incorporating the 3 variables indicated that lactate 2 (second stage lactate concentration) was the best predictor of DRP and adding RE and $\dot{V}O_{2MAX}$ did not improve the r any further. Submax lactate concentrations when expressed as $mmol \cdot l^{-1}$ and 4 $mmol \cdot l^{-1}$ velocity did change sig throughout the cross-country season ($p < 0.05$). DRP also changed sig throughout the season ($p < 0.05$). RE and $\dot{V}O_{2MAX}$ did not change sig throughout the season ($p > 0.05$). The results of this investigation indicated that lactate is the best predictor of distance running performance and the lowering of submax lactate concentrations throughout the season explains to the greatest degree the improvement in distance running performance. The implications of this study are that submax lactate concentrations at or near anaerobic threshold can predict running performance better than other variables among a gp of homogeneous coll athletes and a submax treadmill protocol can be set up to test these athletes and meas blood lactates as an accurate method to assess abilities.

TEXAS A&M UNIVERSITY (L.J.Dowell)
COLLEGE STATION, TEXAS

162. HYMAN, W.V. Differential perceptions of ministers and church goers with regard to health counseling needs. Ph.D. in Health Education, 1987 (R.S. Hurley, W.E. Wylie)

163. SADLER, W.C. The attitudes of public school superintendents, athletic directors, and school board presidents regarding the values in interscholastic athletics. Ed.D. in Physical Education, 1987 (J. Chevrette)

164. MELLOTT, S.K.M. Graduating nursing student's knowledge of child abuse. Ph.D. in Health Education, 1987 (R. Hurley, W. Wylie)

165. MILLER, E.I.P. The undernourished rat pup and brown adipose tissue: A proposed model for the study of anorexia nervosa. Ph.D. in Physical Education, 1987 (G. Jessup)

166. NUGENT, K.E. The effect of performing the mother's assessment on the behavior of her infant on interactive synchrony. Ph.D. in Health Education, 1987 (N.G. Schmidt)

167. TUCKER, E.R. The relationship of hardiness and stressful life events to obstetric risks. Ph.D.in Health Education, 1987 (N.G.Schmidt)

168. PATRANELLA, K.W. Academic performance, attendance, and schedule rigor of extra-curricular participants and nonparticipants. Ed. D in Physical Education, 1987 (J. Chevrette)

169. BERRY, N.F. Identification and assessment of concerns about healthful dietary practices. Ph.D. in Health Education, 1987 (J.D. Holcomb, B.E. Pruitt)

170. LUCAS, M.M. Collaborative adult learning principles in baccalaureate community health education curricula. Ph.D. in Health Education, 1987 (N.G. Schmidt)

171. ODEN, G.L. The effects of an employee fitness program on worker productivity, absenteeism, and health care cost. Ph.D. in Physical Education, 1987 (J.Chevrette)

172. ANDREWS, E.M.B. Ethical dilemmas encountered by nurses employed by hospitals, community health agencies, and public schools. Ph.D. in Health Education, 1988 (L.D. Ponder)

173. BROWN, J.D. The effects of cooperative and individualistic goal structures on the learning domains of beginning tennis students. Ph.D. in Physical Education, 1988 (J. Chevrette)

174. HAWKINS, M.C. Utilization of health care professionals in selected industrial settings. Ph.D. in Health Education, 1988 (J. Elledge)

175. HEILMAN, T.L. Predicting academic success of medical laboratory technician students in

Texas public community and junior colleges. Ph.D. in Health Education, 1988 (N.G. Schmidt)

176. NEWBERRY, J.E. Efficacy of the fishbein-ajzen and triandis psychosocial models in explaining exercise adoption in blue-collar workers. Ph.D. in Physical Education, 1988 (J. Chevrette)

177. SHARGEY, B.A. The learning style profile of health occupation students in the Houston independent school district. Ph.D. in Health Education, 1988 (N.G. Schmidt)

178. SMITH III, J.F. The effect of angle, velocity, and rotation of incidence on angle deviation of rebounding tennis balls. Ph.D. in Physical Education, 1988 (L.J. Dowell)

179. ZYLKS, D.R. The importance of educational competencies in athletic training as perceived by selected certified athletic trainers. Ph.D. in Physical Education, 1988 (J. Elledge)

180. HILLEY, G.M. Comparative effects of the fit youth today program and traditional physical education on the fitness performance of fourth grade students. Ed.D. in Physical Education, 1988 (J. Chevrette)

181. PANKEY, R.B. The effects of road surface pitch on the subtalar joint while running at selected velocities. Ed.D in Physical Education, 1988 (L.J. Dowell)

182. DAVIDSON, N.T. A comparison of three conservative treatments on the myofascial component of college-aged temporomandibular joint syndrome patients. Ph.D. in Physical Education, 1988 (G. Jessup)

183. LESTER, R.C. An analysis of current and future role perceptions of certified registered nurse anesthetists. Ph.D. in Health Education, 1988 (N.G. Schmidt)

184. THIGPEN, L.K. Effects of statically performed toe touch stretches on torque production of the hamstring and quadriceps muscle groups. Ph.D. in Physical Education, 1988 (L.J. Dowell)

185. WALTERS, F.E. The effects of selected ankle prophylaxis on inversion range of motion. Ph.D. in Physical Education, 1988 (J. Elledge)

186. HENRICH, T.W. Influence of reactive hyperemia in muscle during exercise. Ph.D. in physical Education, 1988 (C. Shea)

187. WILLIAMS, J.H. Extracellular calcium and inotropic effect of epinephrine on isolated skeletal muscle. Ph.D. in Physical Education, 1988 (W. Barnes)

188. POWELL, S.W. A cinematographical analysis and force measure of three styles of the karate back punch and side kick. Ph.D. in Physical Education, 1989 (L.J. Dowell)

189. BUTLER, S.B. Physical education and non-physical education majors: A comparison of exercise behavior. Ed.D. in Physical Education, 1989 (J. Chevrette)

190. TANDY, R.D. An empirical comparison of univariate and multivariate repeated measures analysis techniques when applied to motor performance data: A Monte Carlo study. Ph.D. in Physical Education, 1989 (H.K. Tolson)

TEXAS WOMAN'S UNIVERSITY (A.Uhlir)
DENTON, TEXAS

191. ADAMS, S. Cardiopulmonary effects of 3-month exercise program on patients with coronary artery disease. M.A. in Physical Education, 1988, 91 pp. (J.Pyfer)

The adaptations that have resulted from an exercise program in 10 patients who had suffered a myocardial infarction and 10 patients who had undergone coronary bypass surgery were determined. Meas of VO_2max, HR impairment, METS, functional aerobic impairment, HR, and BP were determined from speed and grade of the treadmill on both a pre and post exercise treadmill test. Based on the anal of the data, there was a sig change ($p < .003$) in both the infarction gp and the bypass gp in VO_2max, HR impairment, functional aerobic impairment, and MET level. Based on the findings, a 3 mon exercise prog can be used to increase the cardiopulmonary func-tions in both infarction and bypass patients.

192. ALBRIGHT, C. Comparison of two methods of training Special Olympics volunteers to teach and coach bowling. Ph.D. in Physical Education, 1989, 184 p. (J.Pyfer)

2 methods of training Special Olympics volunteers in coaching and providing dev bowling skills to MR individuals were dev and evaluated in this study. 26 Ss attended an inservice training workshop held at Arkansas State Univ in Jonesboro, AK. Ss were randomly placed in 1 of 2 training methods. One method involved a 4 hr intensive practicum setting, while the other method involved a 3 hr session which required viewing 2 videotape modules and participating in a practicum setting. 13 Ss randomly selected from an introductory special educ class served as Ss for the control gp and received no instructional training. An evaluation instrument consisting of a 45 item multiple choice test was dev to assess the Ss' knowledge in teaching bowling skills to MR individuals. Pre and post test data were collected from all Ss. A 1 way

ANCOVA was used to anal the data on the adjusted post test scores on the knowledge test. Results of the anal data indicated that there was a sig diff (p < .001) among the adjusted post test M on the knowledge test scores. The Tukey A post-hoc test was computed to determine where the diff were. Both the practicum gp and the videotape gp scored sig higher than the control gp. There were no sig diff between the practicum gp and the videotape gp. Therefore, it can be concluded that a videotape module is as effective as a practicum setting for training volunteers to coach and teach dev bowling skills to MR individuals.

193. ALEXANDER, M. Gender bias in human physical performance research design. M.A. in Physical Education, 1988, 94 p. (M. Hinson)

The hypothesis of this study was that F are underrepresented as Ss in fitness research. Physiological gender diff as they pertained to physical performance were discussed and areas of possible injuries from generalizing data from research done using M subjects to F due to gender diff in the muscular, skeletal, hormonal, and CV make-up have been pointed out. For this study, 6 well accepted journals were selected that published studies on research of physical fitness parameters. Data was collected on the no of F/M Ss used in each study that fit into one of the physical performance categories using the title of the study for its inclusion into the data. The findings from this investigation were that M represented 60% of research S population while F represented 40%. Furthermore, while there were 706 single gender studies utilizing M as Ss, there were only 161 single gender studies on F.

194. ANTONY, R.M. Atlantoaxial dislocation conditions: Knowledge of parents and school personnel working with Down syndrome persons. M.A. in Physical Education, 1989, 161 p. (C. Sherrill)

31 physical educators, 31 school nurses, and 31 parents of Down syndrome (DS) children in TX were tested on their knowledge of atlantoaxial dislocation conditions (ADC). The influence of Special Olympics was also examined. Data were collected by mail using a 20 item multiple choice test constructed by the investigator. Scores on this test ranged from 4 to 18, M = 11.68, indicating poor knowledge on ADC. A 1 way ANOVA revealed no sig diff in the ADC knowledge of physical educators, school nurses, and parents of DS children. A 2 way ANOVA, with subsequent tests, revealed a sig diff between gps in relation to involvement in Special Olympics, $F(2,87) = 3.95$, $p = .02$. A sig diff was found between involved and non-involved nurses, $F(1,29) = 10.01$, $p = .01$. The diff between involved and non-involved physical educators approached sig ($p = .07$). No sig diff was found between involved and non-involved parents.

195. APONTE, R. Comparison of gross motor development between United States and Puerto Rican early school-aged children. Ph.D. in Physical Education, 1988, 127 p. (R.French)

The purpose of this study was to compare the gross motor dev status of early school-aged children in Puerto Rico and US and to dev norms for the Test of Gross Motor Dev (TGMD) using scores obtained from the Puerto Rican sample. The problem was to determine if children in Puerto Rico score diff on the TGMD based on age, gender or comm size. Data were collected from 300 children attending public schools in Puerto Rico by members of the National Task Force on Gross Motor Dev Assessment during the Spring of 1988. The m scores of the Puerto Rican sample and the original standardization sample were compared via t-test while a 3 way ANOVA was conducted to determine if children in Puerto Rico score diff on the TGMD based on age, gender, or comm size. It was concluded that no sig diff on the TGMD m scores exist between the Puerto Rican M (5, 6, and 7 yr old) and F (5 and 6 yr old) and children from the US of the same age gps. Puerto Rican F (age 7) score sig lower than the original TGMD sample of the same age gp. Thus age and gender, but not community size, affect TGMD scores of Puerto Rican children.

196. ARABYAZDI, B. Determination of occupational stress and coping strategies of mediators utilizing the Delphi Technique. Ph.D. in Health Education 1989, 127 p. (R.Tandy)

The study involved 134 staff and volunteer mediators working at 4 public agencies which provide mediation services in the Dallas metroplex. A total of 87 participants completed all 3 rounds of a Delphi study during a 4 mon data collection period. 3 questionnaires were constructed and mailed out in order to collect data. Content anal and categorization applied to data collected in Round 1 provided the foundation for a Likert-scale instrument which consisted of a list of 33 stressful situations. This instrument was used in Round 2 for participants to rate degrees of stressfulness in each situation (reliability, .90). The Round 3 instrument was a rank-ordered list (fb) of the 33 stressful situations generated from the participants' responses in Round 2. Employing t tests, data from Rounds 2 and 3 were compared. The m score for 6 items decreased sig in Round 3; however, on the 27 remaining items diff were not sig indicating a consensus on the degrees of stressfullness. 10 highest rated stressful situations were identified and a comprehensive list of mediators' coping strategies was dev. There were no sig diff between the responses of staff and volunteers to stressful situations.

197. ARNHOLD, R. Reproduction of movement extent cues in sighted and blind adolescents. Ph.D. in Physical Education, 1988, 127 p. (R.French)

The information capacity and hierarchical processing components of the information processing theory were tested to determine the kinesthetic abilities of blind and sighted adolescents in reproducing the extent of an arm mvmt under 3 retention conditions.

20 sighted, 20 congenitally blind, and 10 adventitiously blind Ss were evaluated on the ability to reproduce a mvmt extent on a linear positioning device for 75 trials under 0-, 7-, and 15-s retention conditions. CE and VE scores were anal via a MANOVA with repeated meas design while total error scores were reported following an ANOVA with repeated meas. It was concluded that sighted, adventitiously blind and congenitally blind adolescents perform equally well in reproducing kinesthetically based mvmt. However, the Ss were not cognitively tested to a limit which would engage in information capacity limiting process or cause hierarchical activity to occur.

198. BLACKBURN, K.L. Sport participation and middle school girls. M.A. in Physical Education, 1988, 125 p. (C.Sherrill)

The relationship between sport participation and social values, life satisfaction, physical fitness, and GPA in middle school F, ages 13-15 yr, who had completed 2 yr at Schimelpfenig and Wilson Middle Schools in Plano, TX was investigated. Data on the Sport Participation Sheet, the Social Value Scales, and the Life Satisfaction Index-Z were collected during the fall of 1987 through use of paper-pencil instruments. The TX Physical Fitness Test, and GPA were also anal. A step-wise regression revealed sig r between sport participation and physical fitness; between life satisfaction and social values; and between life satisfaction and physical fitness. A multiple step-wise regression determined that the only sig predictor of sport participation was physical fitness.

199. BRAGG, B.E. The influence of novelty of activity, level of effort required, and personal commitment on the leisure experience. M.A. in Recreation Administration, 55 p. 1988 (N.J. Loveland)

The purpose of this study was to determine the effects of the 3 variables: (a) novelty of activity (high vs low), (b) level of effort (high vs low), and (c) level of personal commitment (high vs low) on the leisure exp. Ss (n = 50) were F undergrad students at TX Woman's Univ that were enrolled in an introductory level psych course. Data were treated both with an ANOVA using repeated meas and a paired t-test. The main conclusion drawn was that there is no statistical diff between the variables examined (low vs high) and the perceived level of leisure exp.

200. BRANSON, S.L.W. A step by step guide to concert planning for dance in secondary education. M.A. in Dance, 1989, 171 p. (G.Keeton)

Information was collected, compiled, and adapted to present an instructional guide to assist teachers in the performing arts with dance concert planning. The material was written specifically to be used at the secondary educ level although it could easily be adapted to ELE or higher educ. Information was assimilated from an examination of lit on dance production and choreography; notes from workshops, clinics, and seminars; and from the author's personal teaching exp. A guide format was used to provide clear and concise organization and easy access to the material. The guide includes chapters about preliminary planning and organization of a dance concert, guiding student choreography, costume and make-up design and use of props, lighting design, scene design, and sound design, as well as an extensive glossary.

201. BRILL, P.A. Personality traits, cardiovascular fitness, and mortality in men. Ph.D. in Health Education, 1989, 141 p. (J.Baker)

The present study was conducted to investigate the relationship among second-order factor personality levels of anxiety, depression, and hostility; CV fitness; and the odds associated with the risk of dying in M. Ss were 494 M who were admin the Clinical Analysis Questionnaire (CAQ) and physical examinations, including a graded exercise test (GXT) between 1977 and 1986. The Ss were divided into cases (deceased) (n=107), and controls (living) (n=387). Ss scoring ≥ 5.5 or < 5.5 on the CAQ were classified as anxious or non-anxious, respectively. Depressed or non-depressed Ss were also classified by scoring≥5.5 or < 5.5, respectively. Hostile and non-hostile gps were also determined. Descriptive statistics for the deceased case and living control gps with respect to demographic and clinical data revealed the case gp had sig higher scores with respect to age, chol, and BP, and lower treadmill time scores than the control gp. A higher percentage of M in the case gp reported being non-exercisers and smokers. A higher percentage of M in the control gp scored as anxious and depressed. Similar percentages of hostility were found in both case and control gps. Sig diff between the anxious and non-anxious, depressed and non-depressed, and hostile and non-hostile gps were found with respect to age, treadmill time, and resting BP. The Mantel-Haenszel statistic, an extension of the chi-square which controls for possible confounders, was employed to determine the odds associated with the risk of dying from being anxious, depressed, or hostile. The crude odds ratios (95% confidence intervals) for anxiety, depression, and hostility are .786 (.388, 1,548), .775 (.338, 1,548), and 1,575 (.474, 5.277), respectively. After adjusting for possible confounders of age, anxiety, depression, treadmill time, chol, glucose, BP, and smoking, there were no sig effects on mortality for any of the anxious, depressed, or hostile gps. The 95% confidence limits were calculated to determine if there was a diff in CV fitness levels in the anxious and non-anxious, depressed and non-depressed, and hostile and non-hostile gps. Sig diff were found between the depressed and non-depressed gps only.

202. COLLINS, S.L. Impressionism in the arts and its influence on selected dance works. M.A. in Dance, 1989, 194 p. (J.LaPointe-Crump)

This study developed a criteria of methodology useful in examining Impressionist tendencies within a dance by first reviewing the origins of Impressionism, in Claude Monet's paintings. The expansion of the style was traced in the music of Claude Debussy. By synthesizing the Impressionist features within these media, an Impressionist model comprised of 4 anal areas was formulated: 1) artistic intentions; 2) subject matter; 3) techniques; and 4) resultant effects. The model was applied to Michel Fokine's Les Sylphides, which upon comparison, then served as a base to develop an Impressionist style model applicable specifically to dance. Antony Tudor's Lilac Garden and Jerome Robbins' Dances at a Gathering were then compared with the synthesized Impressionist style model. No historical period of Impressionism was evidenced. Lilac Garden and Dances at a Gathering were found to be neo-Romantic and neo-Impressionist, respectively, when they were related to the model.

203. CULVER, A.D. Comparison of behavior modification techniques used in Physical Education with institutionalized profoundly mentally retarded students at different ages. M.A. in Physical Education, 1989, 110 p. (R.French)

The preferred behavior modification techniques utilized when teaching PE to institutionalized profoundly MR students in primary, ELE, and secondary age levels were examined. In addition, preferred reinforcers used by these instructors were compared across all 3 age gps. A questionnaire was developed and completed by 37 respondents who instructed PE to PMR school-aged students, 41 respondents who did not serve PMR students, and 9 respondents who did not provide PE for school-aged PMR students. Data of the 37 Ss were anal through the use of descriptive statistical techniques. From the findings of this study, it can be concluded that the type of behavior modification technique and the type of reinforcer preferred by those who instruct PMR students in PE are very similar across all age gps. Verbal Praise was ranked the no 1 technique for improving a desired behavior; facial expression was the preferred technique utilized for decreasing inappropriate behavior, and verbal praise was the reinforcer utilized most often in PE for PMR students in a residential facility.

204. DUNCAN, J.J. The effects of a 12 week exercise program on aerobic capacity in hypertensive subjects receiving Inderal or Visken. Ph.D. in Physical Education, 1988 (J.Pyfer)

The present study was conducted to investigate whether beta-blockers with intrinsic sympathomimetic activity (ISA) improve VO_2 more than a beta-blocker without ISA after a 12 wk training program. Accordingly, 50 sedentary Ss, aged 18 to 70 yr, with resting unmedicated DBP between 95-110 mmHg participated in this study. Ss were randomly assigned to the Inderal (*n*=23) or Visken (*n*=27). Ss were given Visken (5 to 20 mg daily) or Inderal (40 to 160 mg daily) in doses sufficient to lower resting DBP. All Ss participated in a training prog consisting of walking and jogging at an intensity between 70% to 85% of max HR; 20 to 30 min in duration, 3 days per wk, for a total of 12 wk. MANCOVA with age and pretest DVs serving as covariates revealed sig gp diff with respect to resting HR, max HR, and max expiratory exchange ratio. Post-training resting HR were higher in the Visken gp compared to Ss in the Inderal gp (*p*=0.0004). In contrast, max HR were sig higher in the Inderal gp compared to the Visken gp (*p*=0.014). Max respiratory exchange ratio was sig higher in the Inderal gp following training (*p*=0.0003). There were no between gp diff for VO_2max.

205. EFESOA, O.F.B. A comparison of attitudes and feelings of unwed adolescent primigravidas and multigravidas concerning the content and importance of prenatal education. M.A. in Health Education, 1988, 83 p. (L.Kaplan)

Copeland's Interview Tool for Pregnant Unwed Adolescents was used to determine the attitudes and feelings of unwed adolescents concerning the content and importance of prenatal educ. Data were collected from 30 unwed primigravidas and 30 unwed multigravidas who were between the ages of 15 and

19. The participants were interviewed and data collected prior to the first prenatal class for which they had registered. Descriptive statistics indicated that the greatest proportions of both primigravidas (46.7%) and multigravidas (73.3%) considered prenatal classes to be very important prior to taking these classes during their present pregnancies. Results of chi-square tests indicated that there were no sig diff between unwed adolescent primigravidas and multigravidas' attitudes and feelings concerning the content and importance of prenatal educ.

206. ENGLAND, N.C. A biography of Joann Wheeler Keali'inohomoku. M.A. in Dance and Related Arts, 1987, 157 p. (J.A.Mott)

Personal and professional aspects of Keali'inohomoku's life were studied through a survey of lit pertaining to the anthropology of dance; personal interviews with the S; a questionnaire to colleagues; and a review of her thesis, dissertation, and publications. Influenced by a childhood vision of promoting world peace through intercultural art appreciation, she chose to study dance within the discipline of anthropology. B.S.F. and M.A. degrees were received from Northwestern Univ and the Ph.D. from Indiana Univ. In her dissertation "Theory and Methods for an Anthropological Study of Dance" Keali'inohomoku proposed that dance serves to maintain individual and social homestasis and that fieldwork supplemented by secondary sources is essential for dance researchers. Keali'inohomoku sees her greatest contribution as the founding and development of Cross-Cultural Dance Resources, Inc. Here hands-on exper are afforded to scholars and dance performers in an environment rich in opportunities for research, seminars, concerts, and other events.

207. ERICKSON, J.A. A comparison of dynamic balance and performance of learning disabled boys with and without orthoptic vision deficits. M.A. in Physical Education, 1988, 140 p. (J.Pyfer)

The role of orthoptic vision deficits on dynamic balance performance was compared among 46 M with and without orthoptic vision deficits. 2 gps of M, between the ages of 98 mo and 130 mo, were tested. The Ss were first screened for orthoptic vision deficits. They were then tested on dynamic balance performance which consisted of 3 trials each on 3 beams - a 4-in wide beam 9 ft long, a 2-in wide beam 9 ft long, and a 1-in wide beam 6 ft long. Based on the results of a 2 way ANOVA with repeated meas and a Tukey post-hoc test, orthoptic vision deficits were found to influence dynamic balance performance in LD M (p=.0001)

208. ESPINOSA, D.S. The effect of the "No Pass, No Play" provision of Texas House Bill 72 on eligibility for membership on girls' volleyball and basketball teams in the Dallas Independent School District. Ph.D. in Physical Education, 1988, 97 p. (A.Uhlir)

The purpose of this study was to determine whether the establishment of a min passing grade standard for participation in interscholastic sports had an assoc with improved acd standing. Victor Vroom's (1964) theory of motivation was used as a conceptual framework in this study. Data were collected on 91 F enrolled and participating on interscholastic volleyball or basketball teams in Dallas HS. SS must have started to play on the volleyball and basketball teams in the fall of 1984 and continued to play through the fall of 1986. A Cochran Q test ($p < .05$) yielded a sig diff in the no of Ss who were able to play throughout the 3 fall semesters examined. Results indicate that if the "no pass, no play" provision of House Bill 72 had been in effect in the fall of 1984-1985, only 39 (35%) of Ss would have been able to compete (all Ss competed in fall 1984-1985). Once the "no pass, no play" provision of House Bill 72 was instituted, the no of Ss who were successful in maintaining the acd standard of no grade below 70% increased to 64 (58%) in the fall semester of 1985-1986 and 65 (59%) in the fall semester of 1986-1987. Insomuch as House Bill 72 may be generalized to other educ reform rules, it was concluded that such rules do seem to have a pos impact on the scholastic achievement of F volleyball and basketball athletes in the Dallas Independent School District. Further, these findings led the investigator to believe that the Ss' motivation to make a passing grade in class (valence), that the results of the behavior would lead to participation on an athletic team (instrumentality), and that the effort to make the passing grade was related to being able to participate (expectancy) were integral concepts.

209. GIBBONS, R.E.G. A prismatic approach to the analysis of style in dance. Ph.D. in Dance and Related Arts, 1989, 225 p. (P.Hanstein)

A theoretical framework and conceptual model for the definition of style in western theatrical dance was developed to account for the various components that contribute to the unique character of a dance event. The procedure was comprised of 4 major parts. First, an examination of style in music, drama, and the visual arts, including a multidisciplinary review of lit, was used as the basis for identifying the components which comprise, contribute to and affect style. Secondly, information gained from this inquiry was synthesized and a framework for the study of styles in dance was formulated. Thirdly, the conceptual anal resulted in the dev of a comprehensive theoretical model for the definition and anal of style in dance. Finally, the model was examined through study of a representative choreographic work. The 3-dimensional global model incorporates both taxonomic and generative views of style in art and was dev to view each dance performance as a unique gestalt which combines several aspects of style. A ring model was dev for the elements which comprise each of these component parts of the dance event. The global model was concerned with the interactions between the stylistic features of the work, the genre with which it is associated, the performance process of the dancer(s) who give it utterance, the choreographer who created it, and the director who restages it. The ring models were concerned with the elements which comprise artistic processes, genres, and works of art in dance. The horizontal dimension of the global model was an examination of the qualitative features which contribute information concerning classification of the genres and works of art in the dance medium. The elements which comprise the genre were identified as schema, vocabulary, rules, and qualities. The elements which comprise the work were identified as intent, vocabulary, structure, and qualities. The vertical dimension was a study of the 3 parallel artistic processes of choreographing, performing, and directing works in dance. Elements of artistic process were identified as disposition to act, schema, strategies, and training and temperament. The third dimension was a study of the changes over time which occur in processes and works. The model was applied to anal of The Moor's Pavane by José Limón. Suggestions for further study included application of the global and ring models to other aspects of the art form of dance, to other art forms, and to educ, counseling and therapy.

210. GREENE, C.S. A physiological profile of champion level female triathletes. M.A. in Physical Education, 1989, 104 p. (V.Ben-Ezra)

In the Human Performance Lab of St. Paul Hospital in Dallas, TX, champion level F triathletes (N=18) were tested to determine some of their physical and physiological characteristics. All of the athletes underwent a continuous treadmill test, hydrostatic weighing, anthropometric meas, a flexibility test, an anaerobic capacity test, and an arm and leg strength test. The champion level F triathletes were comparable to well-trained F endurance athletes in that they exhibited good, but not exceptional, VO_2 and VE_{max} values, and a low % bf. The Ss demonstrated superior upper body strength, and good lower body strength. The triathletes had a low % bf, but only aver flexibility compared to nonathletes. The athletes in this study also showed a body physique similar to Behnke's reference woman.

211. HAGEN, C.L. Inspirited-dispirited touch: A phenomenological investigation. Ph.D. in Health Education, 1989, 231 p. (R.Tandy)

The nature and characteristics of the exp of inspiriting/dispiriting touch was explored. Concepts from phenomenology and the simultaneity paradigm provided the philosophical and theoretical framework. The investigation was approached by employing phenomenological methods. Data were collected by means of tape recorded interviews with 19 adult individuals. One M and 5 F were selected for in-depth protocol anal. Descriptions were explicated through comprehensive theme anal and illustrated with verbatim statements from participants' protocols. The process of phenomenological reduction resulted in narrative descriptive summaries and yielded the fundamental components of inspiriting and dispiriting touch. Pre-conditions of inspiriting/dispiriting touch and the exp themselves were revealed. Although being inspirited through touch occurred in varied situations in life it became a possibility when it was an expressed act of love, as defined by Eric Fromm, to which the individual freely reciprocated. When the motives and intentions of touch were perceived to be otherwise, the individual was not helped and at times diminished through touch. This study con-cluded that individuals have the power to create a dialogue of openness and trust and to deepen relationships through touch if they choose to involve themselves in a caring and meaningful way.

212. HARRIS, S. L. SADŌ: A modern dance interpretation of the Japanese Tea Ceremony. M.A. in Dance and Related Arts, 1988. (J.LaPointe-Crump)

The purpose of this choreographic research project was to choreograph a dance based upon the Japanese Tea Ceremony. The problem was to identify and abstract the conceptual elements and the primary activities found to be indigenous to the ceremony. These provided the background and foundation for an original dance work, then were translated and expressed through the contemporary dance idiom. Part of this preparation consisted of studying the actual tea ceremony in Dallas and researching the spiritual basis for the ceremony in Zen Buddhism. Found critical to this understanding were the moral and religious principles as they were applied aesthetically through the ritualized preparation of an ordinary hot beverage, considered a staple by the Japanese. Respect, harmony, simplicity, purity, and tranquility are attributes of "the way of the tea." This line of investigation guided the choreographic structure, mvmt quality, and the metaphysical performance attitude of the dancers. Choreographic decisions as to shape, rhythm, time, mvmt, and patterning and scenic and costume design were influenced by the research findings.

213. HARVELL, S. Leisure participation of Senior Citizens before and after age 60. Ph.D. in Therapeutic Recreation, 1988. (J. Tague)

The study was designed to examine the leisure participation of senior citizens before and after the age of 60. Age, gender, ethnicity, mode of transportation, and marital status were used to determine what influence these variables had on leisure participation. The data were drawn from a database developed during the Dallas Senior Citizens Needs Assessment Survey (Yu, 1985) conducted by the Park and Rec Dept, Dallas, TX. Ss were randomly selected for the study from residents of Dallas, TX who were 60 yrs of age and older. Comparative anal were conducted on 349 questionnaires. The Leisure Participation Scale included 16 activities participated in for rec. Ss were asked whether or not they had participated in each of the activities over the past 12 mo. If a S had participated in the activity, they were then asked if this participation occurred 'less often, 'about the same,' or 'more often' compared to participation before age 60. Anal included a Pearson product-moment r, chi-square, cross tabulations, post hoc for chi-square, 1 way ANOVA, Newman-Keuls, and stepwise multiple regression. The results indicated that, overall, there were sig changes in the leisure participation of this population before and after age 60. The data revealed that participation in leisure activities continued at the same rate or increased sig after age 60. Those variables that were sig included age, ethnic background, and mode of transportation used most often. No diff were found for gender and marital status. With all things taken into consideration, being of Anglo origin and driving a car contributed to changes in the leisure participation of this gp of older adults before and after age 60.

214. HIGGS, C.T. Motivational factors influencing the performance of elite woman athletes. Ph.D. in Physical Education, 1988, 141 p. (B.Myers)

Motivational factors influencing the performance of elite F athletes were identified by professional F tennis players and professional F bowlers. Data were collected by means of a modified ethnographic technique involving the use of open-ended interview. The recorded interviews were transcribed and anal in depth to determine if any recurring themes existed. Motivational factors influencing the performance of elite F athletes were found to differ according to the sport participated in and were dependent on the athlete's initial, present, and future involvement with the sport. The results of the study provided qualitative data to the area of motivation within the world of professional F athletics.

215. HOFFMANN, M.A. Comparison of two instruments for needs assessment and evaluation of an

employee health promotion program. M.A. in Health Education, 1989, 69 p. (L. Kaplan)

In order to justify a health promotion prog, an accurate needs assessment and evaluation is necessary. The purpose of this study was to determine if the RiskPlan Report (RPR) and the Healthier People Health Risk Appraisal (HPHRA) could be used with an equal degree of confidence for the justification of an employee health promotion prog. The percentages of each of 7 risk factors (alcohol abuse, hypertension, obesity, hypercholesterolemia, sedentary lifestyle, smoking, and lack of seatbelt use) predicted by the RPR and calculated by the HPHRA for the self-selected sample population were compared. The percentage of alcohol abuse was the only percentage that was not sig diff, indicating that the 2 instruments cannot be used with an equal degree of confidence. However, a sig r was found between the relative incidence of the 7 risk factors as meas by both instruments.

216. IGBANI, B.M.A. Health behaviors and attitudes of selected Nigerian and American university students. Ph.D. in Community Health Education, May, 1989, 109 p. (R.Shipley)

This study compared the diff between health behaviors and attitudes of selected gps of Nigerian and American univ students enrolled in either TX Woman's Univ or North TX State Univ. Of the 100 students who participated in the study, 40 were Nigerians and 60 were Americans. The procedures employed in the study were (a) construction of a research questionnaire and validation of its content by a panel of 5 experts from the HE profession, (b) establishment of the question-naire's reliability via a pilot study (r= .95), and (c) admin of the questionnaire. Anal of the data resulted in a sig overall multivariate F-test between the 2 gps of students. While no sig diff existed between the 2 gps in the areas of nutrition, safety, exercise, mental health, personal health, and attitudes, there was a sig diff in the area of drug-related behavior. No sig diff existed in health behavior and attitudes among the Nigerian students with regard to their length of stay in America. It is recommended that the acd curr place greater emphasis on drug educ, giving special consideration to cultural variations within the student population.

217. JACKSON, S. The effect of Ritalin on the postrotatory nystagmus response of hyperactive children with attention deficit disorders. Ph.D. in Physical Education, 1988, 128 p. (J.Pyfer)

The purpose of the study was to determine if Ritalin has an effect on the postrotatory nystagmus response of children diagnosed as attention deficit disordered with hyperactivity (ADD-H). An electronystagmography (ENG) was used in this study to detect and provide permanent recordings of postrotatory nystagmus. 27 Ss diagnosed as ADD-H and receiving Ritalin as treatment between the ages of 6 and 15 yrs were selected from those referred from TX Woman's Univ Institute for Mental and Physical Dev and a local pediatrician. Each S was randomly assigned to 1 of 3 gps ($\underline{n}$ = 9) for 2 testing dates app 1 wk apart. Ss in gp A were tested once on and once off medication; gp B's Ss were tested both times off medication; and gp C's Ss were tested both times on medication. The data were treated statistically by a 2-way ANOVA (trial x gp) being applied to the data of each DV. No sig diff were found among the gps ($\underline{p}$ = 0.0488), between trials ($\underline{p}$ = 0.1294), or for the trial x gp interaction ($\underline{p}$ = 0.9244) on the variable of total amplitude. Also, no sig diff were found for the variables of total no. of beats and frequency of beats. A conclusion was drawn that the postrotatory nystagmus response of children diagnosed as ADD-H is not sig affected by their daily dosage of Ritalin.

218. KOWALSKI, E. Modeling and motor sequencing strategies of learning disabled boys. Ph.D. in Physical Education, August, 1989, 320 p. (C. Sherrill)

The purpose of this study was to examine model type, verbal rehearsal strategy, and motor proficiency in relation to motor sequencing of LD M. The problem was to compare motor sequencing scores of LD M, ages 7 to 8 yrs, exposed to 4 exp conditions. Ss were 80 LD M purposively selected from school districts in the North TX Region. 2 sets of data were collected for exp anal: the ability to model locomotor tasks as meas by the Motor Sequencing Test (MST) and motor proficiency as meas by the Bruininks-Oseretsky Test of Motor Proficiency, Short Form (Bruininks, 1978). Ss (N = 80) were randomly assigned to 1 of 4 gps: (a) visual-silent model/verbal rehearsal, (b) visual-verbal model/verbal rehearsal, (c) visual-silent model/no verbal rehearsal, and (d) visual-verbal model/no verbal rehearsal. Two 2 X 2 (Model Type X Verbal Rehearsal) factorial ANOVAs were conducted on 2 scores generated by the MST. Spearman rho correlational coefficients were computed between motor proficiency and motor sequencing ability. It was concluded the LD M, ages 7 to 8 yr, evidence no sig diff in performance on MST under visual-silent and visual-verbal conditions. However, LD M, ages 7 to 8 yr, perform sig better on the MST when trained in verbal rehearsal strategy as opposed to no verbal rehearsal strategy. Additionally, motor sequencing is not sig related to performance on the MST.

219. McGUFFIN, K. C. A comparison of the guide wire, caller, and guide runner in the sprint running of visually impaired athletes. M.A. in Physical Education, 1988, 54 p. (R.French)

The effect of 3 diff sensory aids on the running speed of visually impaired athletes was compared. Ss were 10 Class B-1 visually impaired athletes participating in the 1987 National Games for the Visually Impaired in Albuquerque, NM. Each S ran 60-m 3 times randomly using the guide wire, caller, and guide runner. An ANOVA with repeated meas and a Tukey post-hoc test were computed. Based on the results, the guide runner was shown to be sig more effective than the caller. The guide wire was also shown to be an effective sensory aid. By selecting either the guide wire or the guide runner, Class B-1 visually impaired athletes can be assured the least restrictive sensory aid for running the 60-m sprint.

220. MEYER, V. Healthful sexual interactions: "Masculinity" and "Femininity" as constraints. Ph.D. in Health Education, 1988, 66 p. (R.Tandy)

The relationship between sex role orientation and healthful sexual interactions was explored. Gender schema theory was used as the conceptual framework and the Bem Sex Role Inventory (BSRI) was used to determine Ss sex role orientation. The Healthful Sexual Interactions Survey was developed by the author and used to meas Ss sexual satisfaction and responsibility. Data were collected from 114 M and 180 F univ students who were between the ages of 18 and 32. The ANOVA and the t-test showed that the diff between the genders and among the sex role gps on sexual satisfaction were not statistically sig. However, an ANOVA showed sig diff between the genders and between the gps classified as masculine and feminine on attitudes and behaviors related to pregnancy prevention. An Eta Square demonstrated that a greater percentage of the variance (10%) was related to gender than to sex role orientation (6%). However, a definitive interpretation of the results was precluded because gender and sex-role orientation were confounded. The t-tests showed that M were sig more sex-typed than F and that androgynous individuals were sig more likely to confine their sexual interactions to mutually exclusive sexual relationships than those classified as masculine.

221. O'BORN, M. Knowledge and compliance of diabetic footcare in the geriatric diabetic. M.A. in Community Health Education, 1988, 59 p. (R. Shipley)

A study was conducted to determine the diabetic footcare knowledge of geriatric diabetic clients and to determine diabetic footcare compliance behaviors. The Ss were 40 randomly selected elderly diabetic clients from the Clinishare Home Health Agency of Los Angeles, CA. The Diabetic Footcare Questionnaire was mailed to the 40 clients and 38 were returned. All 5 hypotheses were rejected. The study showed that elderly diabetics do not have a basic knowledge of diabetic footcare principles and that there is no sig relationship between knowledge and compliance of diabetic footcare principles.

222. PATKE, K. E. Physical Education objectives as perceived by middle school students. M.A. in Kinesiology, 1989, 82 p. (B. Myers)

Middle school students from a North TX urban school, M (n = 264) and F (n = 342), were admin a paired comparison instrument using 9 PE describers to determine their perceptions of PE objectives. A second paired comparison instrument was used to determine their preferences for 15 given PE activities. A frequency tally of the describers and activities resulted in a rank assigned to each describer and activity. Spearman rank r was used to determine the relationship between the M and F responses for the PE describers. The study indicated that the students perceived PE objectives in the following ranked order: sports skills, health and fitness, free time, enjoyable, socializing, rec games, emotional release , just another class, and unimportant. Spearman rank r indicated that there was no sig relation between the M and F perceptions of PE. The 9 describers of PE were compared with professional physical educators' perceptions of the PE objectives found in the research lit. They were essentially the same. Middle school students ranked the following PE activities 1 through 15: swimming, basketball, softball, volleyball, free time, rec games, gym-nastics, activity games, tennis, flag football, soccer, jogging, aerobic dance, exercise, and fitness test. The students' responses were tallied according to gender and grade level. There were diff in the preferences of activities the students enjoyed. In conclusion, the middle school students selected the top 3 describers of PE as sports skills, health and fitness, and free time. These describers correspond with objectives of the psychomotor and affective domain that professional physical educators feel are important to the PE curr. If physical educators can include students' opinions when developing curr, then the teachers' teaching and the students' learning will be more effective. Replication of this study, surveying ELE and HS students, and physical educators, is suggested. A follow-up study to determine any changes in the middle school students' perceptions should be conducted.

223. PAULSEN, P. L. Comparison of wheelchair athletes and nonathletes on selected mood states. M.A. in Physical Education, 1988, 99 p. (R. French)

The purpose of the study was to investigate the mood states of M coll wheelchair athletes ($n = 26$) and M coll wheelchair nonathletes ($n = 28$) and compare them to mood state characteristics of able-bodied coll athletes and nonathletes. Ss completed the Profile of Mood States, which meas tension, anger, depression, vigor, fatigue, and confusion. Data from the POMS were subjected to anal by multivariate t tests, and compared to POMS data from able-bodied athletes (Cavanaugh, 1982) and POMS coll norms (McNair, Lorr, & Droppleman, 1971). There were sig diff favoring the wheelchair basketball players over the wheelchair nonathletes in all mood dimensions except depression. The wheelchair basketball players had sig better scores than the able-bodied athletes and the able-bodied nonathletes in all comparisons. The wheelchair nonathletes demonstrated more favorable scores than the able-bodied coll norms in all mood dimensions except anger.

224. PLUMLEE, L. K. Acting the dance: An application of the Stanislavski acting method. M.A. in Dance, 1989, 97 p. (G. Keeton)

The art forms theatre and dance share many similarities in the roles of the actor and dancer, as well as the playwright, director, and choreographer. Specifically, dancers can glean a great deal of information from the actors' and directors' documentation of the process of character dev. In this study, the Stanislavski Acting Method was specifically applied to character dev in an original narrative dance work. Through this study, it was concluded that this acting method could assist in effective dance character dev. Additionally, a discussion of the application of the Stanislavski Acting Method in the dance classroom was included.

225. RAINBOLT, W. J. Changing-consistency board as a measure of vestibular function: A validity study. Ph.D. in Physical Education, 1988, 183 p. (J. Pyfer)

The construct validity of the changing-consistency board as a meas of vestibular function was examined. The Southern CA Postrotary Nystagmus Test was used as a criterion to classify Ss into 2 known gps, normal and vestibular dysfunction. The Ss, 30 in each gp who ranged in age from 60 to 117 mo, were filmed walking the changing-consistency board from the posterior and lateral views. A 2-way ANOVA with repeated meas indicated no sig interaction of the CG scores between Gps x Surfaces from the posterior and lateral views. From the posterior view, the CG scores for each step walked on the hard and soft surfaces of the changing-consistency board were not sig. However, there was a sig diff in the CG scores for each step walked on the hard and soft surfaces for the lateral view. A Tukey post hoc anal indicated that all pairwise comparisons were sig with each consecutive step beginning with Step 1 on the hard surface and ending with Step 2 on the soft surface. Also, the data anal indicated that there was no diff between the known gps on their CG scores from the posterior and lateral views. Within the limits of this study, it can be concluded that when the SCPNT is used to identify known gps to establish construct validity, the changing-consistency board is not a valid meas of vestibular function.

226. RAYBORN, K. M. Competitive swimming interagency inservice training for Special Olympics coaches. M.A. in Physical Education, 1988, 123 p. (C. Sherrill)

The effectiveness of a 2-day interagency inservice teacher training model for Special Olympics coaches was investigated. The inservice training model was field-tested with 37 coaches and prospective coaches in the north TX area. All trainees received 2 sessions of formal inservice training which entailed pretest and posttest admin of a knowledge test. This test was the summative portion of the evaluation. A formative evaluation was directed toward the effectiveness of the model which entailed answering pre-established questions about the training model components. A *t* test indicated sig diff between pretest and posttest scores. ($p <$ .001). The formative evaluation of the interagency inservice training model showed the training to be effective, based on the responses to questions concerning model components. In conclusion, the Special Olympics competitive swimming interagency training model is an effective method of improving competitive swimming knowledge and practices of Special Olympics coaches.

227. RICHIR, K. Self-actualization of blind male elite athletes. M.A. in Physical Education, 1988, 114 p. (C. Sherrill)

The purpose of the study was to describe self-actualization of blind M elite athletes as meas by the Personal Orientation Inventory (Shostrom, 1966). The Ss were 26 elite blind M, ages 17 to 38 yr, who had placed first, second, or third in either national or international games. Based on the anal of the data, the hypothesis of no sig diff in self-actualization between blind elite M and F athletes was accepted. Answers to 4 research questions revealed that elite M blind athletes have self-actualization profiles similar to those of ablebodied athletes and elite F blind athletes but dissimilar (i.e., less self-actualized) to the profile of normal adults in the test manual. Areas of the greatest self-actualization for elite blind athletes are Spontaneity and Self-Regard.

228. ROMEJKO, L. C. A somatographic analysis of young and older women based on the Reference Woman. Ph.D. in Physical Education, 1989. (B. Myers)

This study was undertaken to determine if there was a diff among Reference Woman's (Behnke & Wilmore, 1974) somatogram of the 1940's and the somatograms of young and older women currently residing in TX. The somatographic meas were collected during the fall and the spring (1987/1988) on volunteer F age 20-24 yr (n=176) and older F age 50-55 yr (n=82). The Ss participated in a session wherein anthropometric meas were taken: ht, wt, 13 bodily circumferences (head, shoulders, chest, abdominal

I [upper], abdominal II [lower], hip, thigh, bicep, forearm, wrist, knee, calf, and ankle), and skinfold thicknesses (tricep, suprailium, and thigh). All the above anthropometric meas, excluding skinfolds and head, were mathematically computed to determine deviation scores which formed gp somatographic plots demonstrating how far each S deviated from the Reference Woman. In order to test for the overall sig diff in raw M scores and M deviation scores of the bodily circumferences among the 3 diff gps of women, a 1-way MANOVA with 1 sample Hotelling's T^2 was utilized. The Reference Woman meas sig higher on the raw M scores of abdominal II, hip, bicep, thigh, and % bf than the current young F. The current young F meas sig higher on the raw M scores for the ht, shoulder, chest, abdominal I, calf, and ankle than the Reference Woman. The majority of the raw M scores on the bodily meas for the older F were sig larger than those of the Reference Woman. The older F had sig higher raw M scores on most of the bodily meas than those of the current young F. The forearm, hip, thigh, and bicep M deviation scores were sig larger in the Reference Woman than in the current young F. The shoulder, chest, and calf M deviation meas were sig larger in the current young F than the Reference Woman. The M deviation scores of the various circumference meas were also sig diff between the Reference Woman and the current older F and between the current young and older F.

229. SANTIAGO, E. A study of factors attracting American tourists to Puerto Rico. Ph.D. in Recreation Administration, 1988, 107 pp. (J. Tague)

The purpose of the study was to investigate the factors that attract American visitors to Puerto Rico. Data were gathered, through self-admin questionnaires, from 194 American tourists residing in selected hotels in Puerto Rico in Feb, 1987. The sample was divided into tour and non-tour gps.

Simple descriptive statistics were used to determine the diff between the tour and non-tour American travelers and their reason for visiting, attractions visited, sources of information, and problems encountered during their stay in Puerto Rico. A 1-way ANOVA was used to determine the relationship between reason for visiting Puerto Rico and length of stay for American travelers. A _t_-test was employed to determine the diff in the attitudes toward Puerto Rico for tour and non-tour American travelers. The findings of this study indicated that there were few diff in the demographic characteristics of the tour and non-tour visitors. 41 (41.5%) of the tour travelers indicated they were employed as a professional compared with 21.6% of the non-tour travelers. Some similarities were found when comparing travel patterns of the 2 gps. Diff were found in attitudes toward Puerto Rico by tour and non-tour travelers. Tour travelers perceived food to be more sanitary, public transportation to be less crowded, and resorts to be lower class than did non-tour travelers.

230. SEXTON, J. L. _DWI offenders: Demography, perceptual driving skills and risk taking behavior_. Ph.D. in Health Education, 1988, 77 p. (R. Tandy)

Demography, perceptual driving skills and risk taking behavior were determined for 110 white, M, driving while intoxicated Ss enrolled in the Denton County Probation driver educ prog between Apr, 1987 and Nov, 1987. The ave age of the Ss was 29 yr and 49% were single. 79 Ss were blue collar workers (71.8%), and 21% did not complete HS. The majority of Ss reported yearly incomes of $15,000 or below (62.7%). The majority of Ss drove 6,000-18,000 mi per yr, and had 13 yr of driving exp. The ave no. of traffic tickets received was 5 (41.8%), and 52% reported 0-1 lifetime accidents. The majority of Ss reported zero alcohol-related accidents (71.8%), zero defensive driving courses (58.2%), and zero previous DWI courses (90%). The majority of Ss had taken driver educ (62.7%). The Ss were given 2 audiovisual tests to determine perceptual driving skill (DPT) and driving risk taking behavior (DRI). A Spearman r indicated that a sig inverse relationship existed (p=.044) between scores on the DPT and the DRI. A multiple regression anal indicated that educ level (p=.0106), and yearly earnings (p=.0021), were sig predictors of neg risk taking. Increased yr of driving exp r with higher risk taking scores (p=.0033). The only sig predictor of high DPT scores was educ (p=.0001).

231. SHAFFER, G. G. Variables related to the treatment method(s) preferred by Dallas County physicians for premenstrual syndrome. M.A. in Community Health Education, 1988, 69 p. (L. Kaplan)

Premenstrual symptomatology and treatment has been well defined in the lit. Few studies have examined variables related to physicians and their selection of treatments for Premenstrual Syndrome (PMS). Previous studies have implied that there is a need to assess the degree to which help is being offered to those who seek it. The purpose of this study was to determine if a diff existed among the methods preferred for the treatment of PMS by obstetricians/gynecologists practicing in Dallas County. In Dallas County, 285 practicing physicians were surveyed. Anal of the data from the 72 respondents indicate that there is sig variance in the treatment methods preferred by Dallas County Physicians who treat patients for PMS. In addition, there is a sig relationship between the treatment methods that the physicians preferred and their age and no. of yr in practice.

232. SHEA, A. Arts Unlimited: A portrait of an aesthetic education program. Ph.D. in Dance

and Related Arts, May, 1989, 121 p. (J. A. Mott)

An aesthetic educ prog, Arts Unlimited, in Bowling Green, OH, was studied to trace its dev and growth in order to evaluate its impact in a rural environment. Information about Arts Unlimited from its inception in 1980 through its dev to 1985 was obtained from minutes of meetings, grant applications, correspondence, and budgets. Communications with key personnel of Arts Unlimited and the investigator's exp as dance consultant were used to prepare the chronology of the prog. An assessment was made of the impact of the prog on the comm by focusing on 4 challenges as defined by the director of the project. Ongoing assessment of the prog was made through 1988. Explored was Arts Unlimited's use of the pedagogical model of the Lincoln Center method of aesthetic educ and the modifications Arts Unlimited made to implement the prog. It was concluded that the intent to trace the history of Arts Unlimited was accomplished. It was also shown that Arts Unlimited serves as a valuable example of the implementation in a rural setting of an aesthetic educ prog originally developed for a large, urban multi-cultural metropolis. The importance of Arts Unlimited as a satellite prog of the Lincoln Center Institute for Aesthetic Educ is sig and demands its own place in the history of the dev of aesthetic educ in this country. It stands as a model of dev through grass roots involvement and integration of key influential people, interest gps, educators, and artists drawn together for a common cause.

233. STODDARD, J. Selected wellness characteristics of new, male Texas Youth Commission employees. M.A. in Physical Education, 1988, 145 p. (C. Sherrill)

Selected wellness characteristics of juvenile corrections workers were examined. Ss (n=90) were new, M employees ages 20 to 49 yr (m=33 yr).

Results indicated that over half of the Ss exercised less than 3 times a wk and that 49% used tobacco. All gps were overweight (p=.001). 2 of the 3 gps (ages 30-39 yr and 40-49 yr) had 12-min Walk/Run scores sig lower than the age gp norm. 1 of the 3 gps (ages 36-45 yr) scored sig higher on flexibility than the age gp norm. 1 of 3 gps (ages 40-49 yr) scored sig lower on state and trait anxiety than the age gp norm. It was concluded that TYC child care workers (a) generally are overweight, (b) are in need of improved CV conditioning, especially for ages 30 yr and older, (c) have acceptable levels of back-hip flexibility, and (d) are not unduly anxious, either by nature or condition.

234. SUHR, M. J. M. A history of Korean dance. Ph.D. in Dance and Related Arts, 1988, 335 p. (A. S. Lockhart)

Comprehensive information about Korean dance with its historical, political, social, and cultural background in relation to theatre, costume, and music is presented. Major sources included the NY Public Library Dance Collection, the Korean Cultural Center of the Consulate General in Los Angeles, the Korean Ministry of Culture, the Korean National Classical Music Institute, the Korean National Commission for UNESCO, the Korean Culture and Arts Foundation, and the International Cultural Society of Korea. Until the end of the Yi Dynasty (1910) Korean dance was of 2 types: court, for ceremonies and the entertainment of the upper class and visiting foreign dignitaries; and folk, for the lower classes (ignored by govt officials). As the class system disappeared from Korean society, it did so also in dance. Korean dance now includes court, religious, folk, mask, and Western influenced modern dance forms. All are highly respected and officially supported by govt, educ and other organizational agencies. A govt system for preserving tangible and intangible cultural assets officially recognizes all forms of dance, and that dance is an important subject taught throughout the nation's school system.

235. TRIANA, B. F. Menstrual dysfunction in runners. M.A. in Physical Education, 1989, 182 p. (C. Sherrill)

37 normally menstruating runners and 24 oligo/amenorrheics, M = 32 yr, were tested for menstrual function (periods per yr and days per period), age, % bf, wt, tension, trait anxiety, and mi per wk. Data were collected by the hydrostatic weighing method, the State-Trait Anxiety Inventory (STAI), Profile of Mood States (POMS), and the Subject Data Sheet. A MANOVA revealed a sig diff between the Normals and the O/As with respect to menstrual function, (p=.02). This diff was explained by age. A stepwise regression anal indicated that the chosen variables were not sig predictors of menstrual function. For periods per yr, age and mi per wk accounted for 8.95% of the total variance. For days per period, % bf accounted for 2.05% of the variance.

236. TRIPP, A. Attitudes of children in integrated and segregated Physical Education programs toward peers with disabling conditions. Ph.D. in Physical Education, August, 1989, 126 p. (R.French)

The problem of this study was to compare attitudes of 478 children without disabling conditions, ages 9-12 yr old, attending integrated and segregated ELE PE prog, toward peers with disabling conditions (n = 21). Peer Attitudes Toward the Handicapped Scale (PATHS) was used to determine if there were attitude diff. The M scores for PATHS total grouping on setting, gender, age, and yrs attending an integrated PE setting were compared using separate 1-way anal ANOVAs. MANOVA was conducted to determine whether children in a integrated PE prog score diff on the physical, learning, and behavior subscales. It was concluded that more similarities than diff exist between the attitudes of children attending integrated and segregated PE prog. Diff occurred however, between the genders. F had more favorable attitudes toward peers with disabling conditions than did M.

237. VANDERVEER, B. Management behaviors of women directors in leisure service agencies in the United States. Ph.D. in Recreation Administration, 1989, 138 p. (A. Uhlir)

A description of management behaviors of F directors in leisure service agencies in the US was accomplished. Ss were F directors ($\underline{n}$=125) of leisure service agencies in the US. A meas instrument was designed by the investigator. The instrument included 30 items that described management techniques and 14 questions about pro-fessional and personal data. Organizing and treating the data included dev a coding format, coding the data, transferring the coded information to computer sheets, entering the coded information into the computer at the Texas Woman's Univ, and statistical anal. Using the SPSS the anal included meas of central tendency (M, median, and mode), meas of variability (SD, variance, and range), meas of skewness for each variable, an r of factors, and factor anal. Based on the results, the sample profile portrayed a white F director of leisure services, with an annual salary of $26,809. The director had a bachelor's degree in Rec admin. The population size served by the leisure service agency was 17,000. The director managed 15 full-time and 54 seasonal and part-time employees. The total operating budget amount was $533,000. The previous occupational title of the director was Rec Manager. The r matrix produced common results of the factor anal that provided 3 interpretable factors which accounted for 43.1% of the scores. The factor anal revealed Factor 1 best described participatory styles of management, Factor 2 identified behaviors of managers relative to the organization, and Factor 3 displayed leadership behaviors of managers.

238. WHITMAN, H. S. Evaluation of a nutrition education program for cancer risk reduction in women. M.A. in Health Education, 1988, 124 p. (R. Shipley)

The purpose of the research was to evaluate the effectiveness of affective versus traditional nutrition educ techniques in improving knowledge, attitudes and behavior. The 44 voluntary Ss participated in 1 of 3 courses: (a) exp (3 attitude-oriented sessions), (b) standard (One 1-hr lecture), or (c) control (no educ). 16 Ss comprised the exp gp; 13 Ss the standard gp; and 15 Ss the control gp. All Ss were pre- and posttested using an objective knowledge test, 2 validated attitude scales, and 3-day dietary records. The data were anal using SPSSx, including t-tests and MANOVA to test the null hypotheses at the .05 level of sig. There were sig improvements from pre- and posttest in knowledge and attitudes within the exp and standard gps, and in kcalorie intake within the exp gp. Only in knowledge did the exp and standard participants improve sig more than the control participants.

239. WILLIAMS, S. Determination of the message content for educating the public about the health education profession. Ph.D. in Health Education, 1988, 148 p. (R. Shipley)

The purpose of this study was to identify the contents of a marketing message that HE educators need to transmit to the public about their profession. A questionnaire, developed by the researcher, was used to determine the message content. 4 decision questions were asked of all participants. Data were collected by the Delphi technique, with chairpersons or their designees of college HE Dept across the US. 72 participants completed all 3 rounds of the Delphi study. Content anal was done on all 3 rounds of the study. The participants identified the main objective of the HE educator as promoting healthy lifestyles and characteristics of a successful educator were excellent communication skills and the ability to work with people. The benefits the HE educator offers the public were accurate information, and teaching decision making skills while their uniquenesses were professional training and emphasis on pos HE attitudes.

240. WILSON, B. T. A survey on grading procedures used with integrated and mainstreamed students in Physical Education. M.A. in Physical Education, 1988, 126 p. (R. French)

Grading procedures used in class 5A HS PE classes were investigated to determine how integrated and mainstreamed students were assigned a grade. The Ss included physical educators in class 5A HS who were representative of regular physical educators who might have handicapped students in their classes as determined by the school principal. Respondents included teachers who graded nonhandicapped and handicapped students in the same manner, teachers who did not diff between integrated and mainstreamed handicapped students, and teachers who diff between regular, integrated and mainstreamed students for grading purposes. Based on the results of the data, participation, attendance, and effort are the criteria on which the grade is based.

241. WOODARD, J. M. Reliability and grip strength profiles for Texas high school males using an electronic hand dynamometer. M.A. in Physical Education, 1988, 66 p. (B. Gench)

The investigator accumulated and assessed data regarding the reliability of an electronic hand dynamometer as well as determining a grip strength profile for TX HS M. The 50 right-handed volunteers who served as Ss were 15 yr of age. Data were collected at A&M Consolidated HS in College Station, TX. A Jamar Model 2A electronic hand dynamometer was used to collect the data. The S's grip strength was tested 3 times with each hand on successive days. The M for each hand was determined from the trials each day and the results were anal to determine: (a) to what degree the derived M correlate, (b) what was the grip strength of 15 yr-old M. The results were determined by the use of a microcomputer and accompanying software. A Pearson product moment r =.946, p <.001, for the nonpreferred hand and r =.954, p <.001, for the preferred hand were found. It was also determined that the Ss had a mean grip strength of 97.32 lbs (SD = 22.5) with the preferred hand and 90.50 lbs (SD = 21.7) with the nonpreferred hand.

UNIVERSITY OF ALABAMA **(J.Smith)**
TUSCALOOSA, ALABAMA

242. MORRIS, J.E. The energy cost treadmill walking while pumping hand-held weights. M.S. in Adult Fitness Management, 1989. 39p. (P. Bishop)

30 F volunteers walked on a treadmill at 3.5 mph with 0 kg, 0.45 kg, and 0.91 kg wts carried in each hand. Arms were pumped to hts of < 0.3m, 0.3m, 0.6m, and 0.9m, pumping 2 min at each level and wt size combination. The purpose was to determine the energy cost of walking while pumping with and without hand wts. VO_2 was meas for each condition and ranged from 14.1 to 22.8 ml/kg/min. Caloric expenditure ranged from 4.3 to 7.1 kcal/min. A sig diff (P < .0001) was found to exist between pump level and wt size. It was concluded that the greater the arm pump and wt size the greater the energy cost.

It was also found that wt makes a diff in energy cost but level produces a greater effect.

UNIVERSITY OF ALBERTA **(A.Quinney)**
EDMONTON, ALBERTA

243. CALZONETTI, K.A. Participation in physical activity by disabled females in Canada. M.S. in Physical Education, 1938.

The purpose of this study was to examine the physical activity patterns and physical activity needs of physically disabled F in Canada. A survey was designed to tap the feelings of disabled F concerning their participation status with a view to improving the opportunities available to disabled F in Canada. Results from this study reveal a no. of factors which affect participation (or the lack of it) in physical activity by disabled F. Although the F surveyed had pos attitudes toward physical activity, their own degree of involvement in physical activity did not always reflect this attitude. Furthermore, the physical activity patterns which were demonstrated, and the activity needs which were expressed may be attributed to gender and disability. The disabled F surveyed participate in many of the same physical activities as able-bodied F and for many of the same reasons. The barriers to participation are among the same constraints also expressed by able-bodied F in previous studies. A lack of information on available prog was among the most constraining factor to participation in physical activity. Less than 5% of those surveyed found out about existing physical activity prog for the disabled through the school system. Over half of the inactive respondents said they would be more physically active if more prog were made available. Results showed a preference for physical activities in an integrated setting. Well over half of physically disabled F said they felt encouraged to participate in physical activity when watching other disabled individuals participate. They felt discouraged by the notion of participation solely for rehabilitative reasons. Overall this study revealed that the physical activity patterns and needs of disabled F are a reflection of many situational and socialization factors common to all F. These factors, such as age, SES and past exp in physical activity affect and help explain the degree of involvement and participation. In light of this point, and the descriptive data gathered from this study, there are many implications for application to physical activity prog for the physically disabled F participant.

244. ETTINGER,A.V. Cardiovascular and perceived exertion responses to cycling velocities. M.S. in Physical Education, 1989

The purpose of this study was to investigate CV and RPE responses to cycling velocities (CR) of 40, 60, 80 and 100 rpm at low, medium, and high power outputs (40, 55 and 70% of VO_2max). 19 young healthy physically active M. participated in the study which consisted of a VO_2max test and four cycling velocity treatment tests on a constant load cycle ergometer. The cycling velocity tests, conducted 24 to 48 hrs. apart, required the S to cycle at 1 velocity for 4 min at low power output (PO), 5 min at medium PO and 5 min at high PO. VO_2, HR, RPE, BP, SV (determined by impedance cardiography), and CO were monitored. Blood samples for venous lactate concentrations (BdLa) were drawn immediately pre-exercise and 5 min post-exercise. Data were anal using a two-way ANOVA with repeated meas. A Newman-Kuels' post hoc test was conducted to determine individual M diff. At low and medium PO, the cycling velocities that produced the lowest demands on the CV system (optional cycling velocities) were 40 to 80 rpm. No diff existed (p.05) in VO_2, HR, SV, CO, MAP AND RPE. Sig higher CV responses ($p>.05$) occurred at 100 rpm (VO_2, HR, CO, MAP). At high PO, 60 and 80 rpm placed the lowest demands on the CV system and no sig diff existed (p>.05) in VO_2, HR, SV, CO, MAP, SVR and RPE. Both 40 and 100 rpm caused higher demands on the CV system. VO_2, BdLa and RPE were higher ($p<.05$) at 40 rpm than those at 60 and 80 rpm. At 100 rpm VO_2, HR, CO, BdLa and RPE were sig higher ($P<.05$) than results at 60 and 80 rpm and all but RPE results were higher than those elicited at 40 rpm ($p<.05$). The increased VO_2, CO, and BdLa at high cycling velocity (100 rpm) seemed to be a result of increased static contraction of trunk and upper body muscles needed to provide stability. The possible cause of elevated VO_2 and BdLa for slow cycling velocity (40 rpm) at high PO was increased upper body and trunk muscle involvement and higher portions of anaerobic metabolism as a result of the larger force required for each pedal stroke. The study demonstrated that for young healthy physically active M. 60 and 80 rpm were the optimal cycling velocities over a wide range of PO in terms of CV and metabolic responses. For low and medium PO, 40 to 80 rpm were found optimal. The data suggest that 60 to 80 rpm can be used interchangeably in submax testing over a wide range of PO in healthy active young M.

245. GOMES,P.S.C. Effects of continuous and intermittent training on body composition and selected physiological parameters. Ph.D in Physical Education, 1989

Based on their initial relative VO_2 max, assessed by means of a progressive cycle ergometer test, 33 M Ss were ranked in descending order. Subsequently they were subdivided in 3 gps and were submitted to 12 wks of physical training on cycle ergometer. In addition, a gp of 6 M Ss served as non-exercising controls (CG). The first gp (VTG) trained continuously at the ventilatory threshold two (VT2). The second (BVTG) gp trained continuously at 15% below the VT2. The third gp (ITG) exercised intermittently (1:1) at 100% of the VO_2 max. The total amount of work done per training session was equated in the 3 gps. The exp gps (pre, mid and post) and the CG (pre and post) were submitted to a protocol of anthropometric meas, which included wt, 7 skinfolds and the determination of body density. During the course of the study a nutritional assessment was conducted in all exp gps, by means of recall diaries. The results of the study showed that power output at max exercise capacity increased sig in all training gps but decreased in the CG. At VT2, power output sig increased only in the VTG. The absolute VO_2 max increased sig in the VTG and ITG, but did not change in the BVTG and ITG gps. All training gps sig increased VO_2 max relative to bw. Both the relative and absolute VO_2 at VT2 sig increased in the VTG and ITG, but did not change in the BVTG. Changes in VO_2 at max and at the VT2 were not related in all training gps (for individual gps or pooled data). Body density increased sig in the BVTG, with no sig changes in the other exp gps. Changes in body density seemed to be due to training, since the Ss did not alter their nutritional intake during the 12 wk training prog. A sig reduction in the sum of skinfolds was observed in the BVTG, but this change was not related to the alteration in body density. Changes in blood lactate and FFA concentrations during training did not seem to be related in any of the exp gps.

246. KELLOCK,J.E. Physiological characteristics of competitive male triathletes and sport specific training intensities. M.S. in Physical Education, 1989

The triathlon, a 3 sport event of swimming, bicycling, and running is gaining considerable popularity. Many athletes competing in these races come from single sport backgrounds. Learning the new sports and training for 3 rather than 1 sport is very challenging. As an endurance event, triathloning requires optimal dev of an athlete's VO_2 max and ventilatory threshold. Triathletes manipulate training variables based upon guidelines established for the single sports of swimming, cycling, and running. Exercise intensity is regarded as the most important factor in achieving the beneficial effects of training. Since little scientific data has been generated regarding training for triathlons, many common questions posed by these athletes remain unanswered. Guidelines specific to the triathlete do not exist, thus the purpose of this thesis was to physiologically characterize competitive M triathletes and investigate the hypothesis that diff may exist in training utiliz-ing RPE and HR monitors in swimming, cycling, and running. By determining the triathlete's RPE and HR at ventilatory threshold for each sport in a lab setting and comparing it to the intensity at which training occurred utilizing RPE and HR monitor, identified discrepancies allowed for a training error/efficiency rating to be calculated. The exp gp was comprised of 12 Ss who were competitive M triathletes. Statistical anal justified the following conclusions. Individuals exp in a particular sport were able to correctly utilize the RPE and HR to monitor training intensity. However, in each sport the latter task in difficult, thus, all triathletes can improve their training by utilizing the HRs at or just below ventilatory threshold with the aid of HR monitors.

247. KREISEL,P.S.J. High school basketball players' perceptions of their coaches' use of social power. Ph.D. in Physical Education, 1988

This research examined the leadership role of the HS basketball coach using French and Raven's (1959) theory of social power. French and Raven postulated that leaders influence their followers using 5 basic forms of power: reward power, coercive power, expert power, legitimate power, and referent power. On the basis of previous research, it was hypothesized in the present study that athletes would perceive expert and legitimate power to be the major sources of power of the coach, followed in turn by referent, reward and coercive power. Additional hypotheses postulated pos relationships between expert and referent power and the reported satisfaction that athletes had with their sport, their coach, and their personal performance. It was hypothesized that reward and legitimate power would be unrelated to sport satisfaction, pos related to coach satisfaction and neg related to performance satisfaction. Neg relationships were predicted between the reported satisfactions and coercive power. The S population for this study consisted of the players from 15 Edmonton HS M basketball teams. Participants from each team were tested as a gp at their school. They completed a questionnaire under controlled classroom conditions. 130 of the 159 eligible players participated in the study, yielding an 81.8% response rate. 2 sets of scales were used to meas social power. One set arranged single item descriptors of each form of power into a Thurstonian paired comparison inventory. The other set arranged multiple descriptive statements of each form of power in a Likert scale format. In evaluating the first hypothesis, both meas found expert power to be the major source of power emphasized by coaches. The Likert data, however, showed reward power to be second overall, followed in turn by legitimate, referent and coercive power, while the Thurstone data showed legitimate power as being second, followed in turn by referent, reward and coercive power. The Likert meas of expert reward and referent power were pos r with athletes' reported satisfaction with the sport and with the coach. In addition, sig pos relationships were found between legitimate power and satisfac-tion with the coach, and reward power and satis-faction with personal performance.

248. McCORMACK, D.A. Injuries to wheelchair athletes: Through sport participation, training,

and competition. M.S. in Sports Injuries/
Adapted Physical Education, 1988

The purpose of this study was to provide a profile of wheelchair athletes' injuries through participation, training or competition in wheelchair sports. An original questionnaire was admin to Canadian wheelchair athletes at 4 games in Canada throughout the summer of 1985. The results indicated that the most common injuries were blisters (23.2%), abrasions (21.5%), muscle strains (16.3%), and tendinitis (9.3%). Eighty percent (80%) of the 90 athletes competed in an average of 5 competitions per yr, in 35 different sports. The modal level of training was 6 to 10 hrs/wk. The high participation sports were also the sports with the highest injury incidence rates: basketball (1.91/participant), road racing (1.17/participant), rugby (1.14/participant), and track events (1.12/participant). The hands (20%), shoulders (15.5%), fingers (11.8%), and arms (10%) were the body parts most commonly injured. Of all disability gps, the 'les autres' had the highest injury incidence. 72% of the athletes wore protective equipment, mostly gloves (60%), leg straps (23.3%) or arm bands (8.9%). One quarter (25%) of wheel-chair athletes received no treatment for their injuries and less than one third (30.8%) sought medical aid or advice. This etiological research study provides basic descriptive information on wheelchair sports injury that is valuable to wheelchair athletes, coaches, sports medical personnel, and interested others. Its contribution to disabled sports will be recognized as an initial pioneering effort to establish a basic framework for future, scientifically sound studies in wheel-chair sports medicine.

249. NESTI,M.S. The relationship between intrinsic motivation and ability in competitive swimming. M.A. in Physical Education, 1989

The main purpose of this study was to examine the relationship between intrinsic motivation and ability in organized competitive swimming. The psych variables of specific self-esteem, and competitive trait anxiety were also examined because of their strong conceptual relationship to several definitions of intrinsic motivation. Deci and Ryan's (1985a) and Csikszentmihalyi's (1975) conceptualizations of intrinsic motivation provided the theoretical base of this study. Several self-report inventories were admin to meas intrinsic motivation, specific self-esteem, and competitive trait anxiety in M and F competitive swimmers (n=219). 3 ability gps for competitive swimmers were identified: nationally ranked 1-25 for at least 1 event (n=51); nationally ranked 26-50 for at least 1 event (n=42); unranked swimmers (n=126). 2-way ANOVAs (GENDER x ABILITY) were conducted to determine whether there were sig diff between swimmers on the psych meas. Tests revealed that for the var of perceived competence, ranked swimmers scored higher than unranked swimmers, these diffs being sig (p <.05). Considering the competitive anxiety trait meas, F scored higher than M, and swimmers ranked nationally 1-25 scored lower than swimmers ranked 26-50, both diffs being sig (p <.05). Investigation of the rs between meas revealed that a fairly strong neg relationship existed between competitive trait anxiety and intrinsic motivation, and a strong pos relationship was evident between perceived competence and intrinsic motivation meas. The general finding emanating from this study was that all swimmers scored highly on intrinsic motivation, and that top ranked swimmers' scores exceeded those of lower ranked and unranked swimmers.

250. ROBERGE, D. Games of the Inca Empire. M.A.
in Physical Education, 1988

The purpose of this study was to compile and to anal the games of the Inca Empire. It was conjectured that games were social inventions which played a determinant role in the decision-making process in order to divide and distribute possessions , duties and responsibilities on both the individual and collective levels. The study was centered on the nature and function of ancient traditional Andean Games of the Inca Empire prior to 1532 A.D. For this purpose, a classification system that was constructed divided games into 2 categories: ceremonial games with an element of chance, strategy and magic; and games involving elements of physical skill. The task was to anal games in their socio-cultural context in order to understand the importance of their role in a decision-making process applied to the economic, political, religious and social levels. Data tended to show that games of chance and of physical skill were important activities in the Inca society. Games were related to the complexity of the social, economic, political and religious systems of the Inca society and legitimated the exchange between and among its various ethnic gps. The division and the distribution of economic goods and services were achieved by games. Important decisions were made in an accepted way, and games played the role of an incontestable and appropriate decision-making process with respect to concerted actions and sharing situation.

251. REN, H. A comparative analysis of ancient Greek and Chinese sport. Ph.D. in Physical Education, 1988

This study examines the sig of sport in 2 major ancient civilizations by using an historical and cross-cultural anal. The comparison is made at 2 levels: sports themselves and the social contexts in which sports existed. There were evident diff between ancient Greek and ancient Chinese sport in a no. of aspects. First in an organizational dimension, ancient Greek sports were more centralized and more standardized in their forms; ancient

Chinese sports were mainly decentralized and less standardization. Second, with respect to the nature of sport, ancient Greek sports were strongly competitive; ancient Chinese sports were more non-competitive. Third, in terms of a focus on physical exercises, the ancient Greeks paid much more attention to the external muscular dev, while the ancient Chinese regarded the internal body functions as most important. Fourth, with regard to the pattern of physical mvmts, ancient Chinese sport demonstrated a strong bionic character, while its Greek counterpart did not do so. The diff between sports in the 2 ancient civilizations were the result of the interaction of various social factors. It was the diff between these major social factors of the 2 ancient civilizations that formed the final reasons for the contrasts between their sports.

252. SEFTON, J.M.M. A field investigation of children's causal attributions for sport outcomes. Ph.D. in Physical Education, 1988

This study examined the effects of age and gender on children's causal attributions for game outcomes over the first 10 games of a youth sport season. In addition, the effects of age and gender on the interrelationship between causal attributions for past outcomes and subsequent expectations for future performance success were examined. 6 comm league hockey and ringette teams, representing M and F between the ages of 8 and 15 yrs, participated in the study. Immediately following each game the children completed a brief questionnaire which included the questions, "Why do you think your team won/lost the game today?" and "If you played the same team again, do you think your team would win?" Responses to the first question were coded verbatim from the questionnaire, yielding 96 distinct causal attributions. These were subsequently rated 3 times, once for each of the causal dimensions, locus of causality, stability, and controllability. Responses to the second question were either "Yes" or "No". Separate loglinear anal were completed for each of the first 10 games; however, due to low cell frequencies, contingency tables were used extensively to test the hypotheses. Following wins both younger and older F and younger M gave predominantly immediate effort attributions, while older M gave predominantly typical effort attributions. Following losses the younger F gave predominantly mood-type attributions, while the older F gave predominantly immediate effort and mood-type attributions. Both younger and older M gave predominantly immediate effort attributions following losses. Regardless of the stable/unstable nature of causal attributions following a win, both younger and older M and F had high expectations for future success. Following a loss, unstable attributions led to higher expectations for future success than stable attributions for both younger and older M and F. The results of this study have revealed an apparent link between stable attributions following losses and lower expectancies for future performance success. This season-long field study revealed that attributions made by young athletes are relatively stable over a 10 game span. The addition of the controllability dimension greatly reduced the number of ability-type attributions given by the young athletes.

253. SHAW, S.J. Attitudes of Canadians of Ukrainian descent toward Ukrainian dance. Ph.D. in Physical Education, 1988

While many Canadians enjoy viewing performances of the dances of various ethno-cultural groups, little is known about the attitudes of the people of any particular ethno-culture with regard to their dance heritage. This study was designed to discover the attitudes of Canadians of Ukrainian descent in 3 Ukrainian communities (AUUC, Ukrainian Orthodox Church, and SUM communities) in Edmonton, Alta in

1985-1986, toward the factors of exclusivity, background content, a political dimension, and the value of the dance exp. Exclusivity was defined as the desire to keep Ukrainian dance exclusively for Canadians of Ukrainian descent; background content related to the material in a Ukrainian dance lesson that took the instructional exp beyond the teaching of physical skills; a political dimension referred to the presence of a focus regarding the political status of Ukraine in Ukrainian dance or in Ukrainian dance instruction; and value centered on the reasons given by Canadians of Ukrainian descent for participating in the performance form of Ukrainian dancing. It was hypothesized that there would be diff in attitudes towards exclusivity, background content, a political dimension. and value based on generation, family arrival date in Canada, dance comm gp, political inclination regarding the status of Ukraine, church affiliation, Canadian or Ukrainian identification, and youth organization membership. Interview results indicated that there were more instances of statistically sig diff in exclusivity and value than in background content and political dimension, and that the responses for 3 variables (dance comm, political inclination, and church affiliation) were more often statistically sig than the other 4. Major diff between gps in each of these 3 variables were thought to exist because a political dimension automatically aligned the members of individual gps into opposing "camps." With regard to exclusivity, this study concluded that, with 1 exception, there was very little evidence of a sig desire to maintain the Ukrainian dance form as an exclusive enclave in the 3 communities. The exception was the desire of Ukrainian nationalist comm for a Ukrainian dance teacher. 2 conclusions were formulated regarding background content: There was a lack of Ukrainian dance-related material in dance lessons and there was evidence in the responses regarding the value of background content from the AUUC group and the Orthodox Church gp in each of the dance communities and church affiliation variables in that many wanted background material as well as steps and patterns of dance included in their dance classes. The SUM gp in each of the same variables was thought to be less supportive of background material in dance class because this kind of information was provided in Ukrainian educ classes. With regard to a political dimension in dance, there was evidence that a division existed between the 2 Nationalist groups and the pro-Soviet group regarding the political status of Ukraine, but a political focus favoring one side or the other of this dividing line did not appear to be transmitted to or desired by dance class members. Regarding the value of dance, the majority of respondents considered Ukrainian dance to be an important part of what one should know about being Ukrainian. However, it was concluded that values regarding dance particularly in the SUM comm were influenced by feelings/ teachings regarding the political status of Ukraine. Parents seemed more aware of the potential for culture maintenance via participation in dance than did dancers. Dancers primarily valued their exp because they could be with their friends (the social aspect of dancing). Both parents and dancers valued dance for its fitness component, and dancers also expressed sport-related reasons for dancing.

254. STEWART, L. The feminine ideal in sport. M.A. in Physical Education, 1988

This thesis discusses the ways in which the feminine ideal is currently manifested in sport and the effect this has on determining the "what" and "how" of women's participation in sport. The masculine gaze is also examined with respect to the controlling influence that it exerts over women's physical activity. It is argued that, in certain sports, women athletes are connoted as being sexually available to the masculine viewer, and that this defines that sport instance as pornographic.

Some pornography is then examined with respect to its use of sport imagery, and the implications of these findings briefly discussed.

255. STOTT, S.J. A study of the anatomical alignment and physical characteristics of competitive female figure skaters. M.S. in Physical Education, 1989

In this study, comparisons were made between F Ss who had remained free of overuse injuries during their skating careers, (gp I), and Ss who had a history of overuse injuries (gp II). The meas of selected physical characteristics, as well as information pertaining to the Ss training habits, skating ability, and history of injuries, were compared between the 2 gps. Within gp II, another comparison was made of selected physical characteristics between Ss who had similar overuse injuries. The purpose of these comparisons was to attempt to determine any physical characteristics or training habits that may predispose an individual to overuse injury. There were 100 Ss in total, 50 that have been free of overuse injuries during their skating careers, and 50 who had exp one or more overuse problems. Each of the Ss filled out a questionnaire and had several physical meas taken by the examiner, using a goniometer and a tape meas. A computer anal of the results was performed to yield frequency data for all variables. In most cases, the meas m were used for comparison. The results revealed a genu varum alignment in 72% of gp I and 82% of gp II. A genu recurvatum alignment was also present in 80% of the Ss in both gps. While standing, all Ss had a valgus heel alignment and the m between the gps were similar. The m values for medial hip rotation were greater than those for lateral hip rotation in both gps. No sig diff was found between the 2 gps for the m of Q angle, patellar position (standing, sitting and supine), longitudinal arch, and ankle dorsiflexion. The comparison within gp II of physical characteristics, revealed no. sig diff due to the low no representing each injury The training variables examined between gps I and II also showed no sig diff in them. Information provided in this study suggests that there may not be any variables that could be used consistently to predict the dev of overuse injuries.

256. WALL, S.R. Role of fatty acid and glucose metabolism in depressed cardiac function in diabetic rats. Ph.D. in Physical Education, 1988

The acute and chronic effects of elevated fatty acid levels on myocardial glucose oxidation and cardiac function in diabetes were investigated. Admin of agents which activate PDH by inhibiting fatty acid oxidation at CPT I can reverse depressed myosin ATPase activity in diabetic rat hearts via regulation of myosin isoenzyme production. In the first study, chronically diabetic rats were admin dichloroacetate (DCA), an agent which directly stimulates PDH, for 5 wks, after which glucose oxidation rates were meas as $^{14}CO_2$ production from ^{14}C-glucose in fatty acid-perfused isolated working hearts. Depressed glucose oxidation rates in diabetic rat hearts were increased by DCA treatment. Ca^{2+}-activated myofibril ATPase activity, meas in hearts from the same animals, was depressed in untreated diabetics, but was completely normalized by DCA treatment. However, depressed cardiac function in diabetic rats was not increased by DCA treatment. In the absence of increase serum thyroxine in DCA-treated diabetics, these data suggest that a metabolic signal related to glucose oxidation regulates ATPase activity or cardiac myofibrils, probably by affecting myosin isozyme expression. In the second study, the acute effects of fatty acids on glucose oxidation and function were studied in isolated working hearts from chronically diabetic rats. In control hearts, the presence of 1.2 mM palmitate in the perfusate produced a marked 13-fold decrease in glucose oxidation, to rates seen in diabetic rat hearts perfused with glucose alone. The presence of palmitate resulted in almost complete suppression of glucose oxidation in diabetic rat hearts. Direct meas of exogenous palmitate oxidation showed no diff between control and diabetic rat hearts. Cardiac function was reduced in diabetic rat hearts under both substrate conditions. Additions of the CPT I inhibitor, Etomoxir (10^{-6}M), sig increased glucose oxidation rates in all conditions, but the increase was smaller in diabetic-palmitate perfused rat hearts. Etomoxir did not reduce exogenous palmitate oxidation rates or citrate levels. An increase in cardiac function, mainly due to increased heart rate, was observed after addition of Etomoxir to palmitate-perfused control and diabetic rat hearts. These data suggest that acutely reversible effects of fatty acids can contribute to reduced myocardial glucose oxidation and function in diabetes.

257. WILLIAMS, B. Organizational coherence: A case study analysis of a provincial sport organization. M.A. in Physical Education, 1988

The major focus of this study was to operationalize a theory of organization design archetypes in order to better understand the relationship between the activities of a voluntary sport organization and the members of that organization. Values and beliefs (interpretive schemes) were the central focus of the study, and a provincial sport organization was selected for a case study examination of the patterns of values and beliefs among organizational members. An organization was selected based on the researchers perception that the organization was experiencing an observable change event about which organizational members could articulate their values and beliefs. Following the theoretical framework proposed by Greenwood and Hinings (1987) values and beliefs concerning three areas of activity were examined: 1) the appropriate domain of operations i.e., the broad nature of an organization's raison d'etre; 2) beliefs and values about appropriate principles of organizing; 3) appropriate criteria for evaluating organizational performance. Ethnographic data collection techniques were utilized, and patterns of consensus were considered in terms of organizational coherence which was defined in a 2-fold manner. Firstly, coherence was considered in terms of the extent to which there was widespread agreement among organizational members concerning parti-cular values and beliefs. Secondly, coherence was considered in terms of the extent to which the relationships realized in the day to day activities of the organization were a reflection of the values and beliefs of the majority of organizational members. The values and beliefs expressed by informants and respondents, and observed by the researcher, were characterized to represent 2 diff ideal-type interpretive schemes. The 2 diff interpretive schemes were reflected in diff systems of power within the organization. These 2 diff systems of power were found to be contradictory and conflicting. Organizational coherence was discovered in the organization studied, with widespread support to a particular interpretive scheme being found. There was evidence to suggest, however, that the level of coherence observed in the organization had not always existed, and that the change process was on going and continuous.

258. WOOD, G.A. Exploring self-concept change in a private school: St John's School of Alberta. M.A. in Physical Education, 1988

The complexity of life as a student in an outdoor-based, residential school was examined to determine it's effect on the self-concept of students during their first yr of residence. Earlier research has indicated that an optimal level of student self-concept is highly correlated with other personality and behavior characteristics such as achievement, satisfaction and social adjustment. Recognizing these possibilities, outdoor educ and outdoor pursuits prog have been established privately, and in most PE courses in schools and univ. The St John's School of Alberta prog is based on a belief in the value of meaningful work, and the outdoor, acd and work prog give the boys an opportunity to respond to numerous challenges. The school contends that the interaction of outdoor adventure, acd excellence and spiritual growth, in a disciplined residential environment, pos effects the self-concept of it's students. The present research explored the reality of the school's contention. In a pre-mid-post design using the TN Self-Concept Test (TSCS), self-concept scores of the total sample of 35 new M students over a 10 mo period demonstrated no statistically sig change, although a slight neg change was reported overall. Grade 8 (N=9) student self-concept scores dropped in all self-concept dimensions, while Grade 10 scores (N=5) showed consistent, pos trends in self-concept change. Instructor observation forms (IOF) were used to record student behavior changes over the research period, and although showing a sig pos change, indicated no relationship between self-concept and behavior. Qualitative data collected in research field notes of in-school and outdoor trips, and interviews with Ss, parents and staff indicated both pos and neg individual responses to the school environment. The present study reported that although large individual changes in self-concept occurred, overall, the prog did not effect a pos change in student self-concept over the student's first school yr at the St John's School. Although not intended to be generalizable, the present case study, using both qualitative and quantitative methodologies, offers an understanding of the relationship between private, outdoor-based residential school programs and gp and individual self-concept change.

259. XU, D.H. The role of physical activity in confronting death. M.A. in Physical Education, 1989

The purpose of the study was to examine the role of physical activity in confronting concerns about one's personal death, especially death thought and death anxiety. The study contributed to predicting participation in physical activity, to improving human well-being and quality of life, to understanding physical activity, and to furthering death-related studies. A questionnaire, including participation in physical activity scale, a death concern scale, a health status scale, a health locus of control scale, a belief in afterlife scale, and an attitude toward physical activity in dealing with death scale, was used to meas the chosen variables. A sample population of 115 (65 F and 50 M) participants in the summer fitness prog at the Univ of Alberta and casual users of the univ sports facilities took part in the study. A combination of bivariate and multivariate statistical techniques were utilized to examine the research problems. All statistical results were obtained by means of SPSSX. As a result, the main finding of the study was that for F only, more frequent involvement in exercise was sig related to lower death anxiety and a higher rate of participation in sport was sig related to lower death thought. Death concern was found to be more influential than other variables tested in the study, in predicting participation in exercise or sport, except for age.

260. ZAKUS, D.H. A preliminary examination of the dialectical change in "modern" sport and of the intervention of the Canadian state in sport between 1968 and 1988. Ph.D. in Physical Education, 1988

In the 1970s, a formal Canadian sport bureaucracy evolved. The purpose of this study was to explain the reasons for this dev through the logical category of abduction. A Marxist scientific model was applied as an anal-framework. Through the use of materialism and dialectics, sport was put into a framework which allowed it to be defined as a historically particular form of human production with particular inherent contents. Within this framework, sport was viewed as a social activity which could be avocational or vocational, concrete labor or abstract labor, as a subjective or objective form of activity, and dominant feature within either the base or superstructure of society. "Modern" sport was defined through particular historical developments of the Olympic movement. Therefore an anal of Baron Pierre de Coubertin and the IOC was completed. The changing form and content of sport in the 1960s and 1970s provided the basis upon which capitalist states became directly involved in sport production. In the Canadian state this involvement was realized when Pierre Trudeau became Canada's Prime Minister. Trudeau had a well-defined political philosophy and agenda (praxis) through which certain individuals were able to push for the formal structuring of sport in the state. The historical factors for this involvement were anal within the conceptual categories of: nationalism and national unity, dependency, federalism, state cultural intervention, and concrete capitalist state operations. The anal of the Canadian situation was based on the historical dev within civil society generally and political society in particular. The latter discussion followed Maynaud's (1966) 3 motives for state intervention in sport. His third motive of "national prestige" was seen to give the clearest explanation for the Canadian case. Through this study, the hypothesis that the global changes in the form of sport production from an avocational, concrete labor form to a vocational, abstract labor form, and the resultant content (organizational) changes, provided a basis for the intervention of the Canadian state in sport. The technical rationalization of sport production led to bureaucratic rationalization of sport organization.

UNIVERSITY OF ARKANSAS **(P. Marty)**
FAYETTEVILLE, ARKANSAS

261. LEE, C.D. The relationship between coaches' leadership style, strategy and organizational culture on success. ED. D. Athletic Administration, 1989 . 299 p. (P. Marty)

The purpose of this study was to investigate if coll coaches' success is related to their leadership style, strategy and organizational culture. Success was meas by the overall and conference won-loss percentage and percentage attendance for last yr and the last 3 yrs. The Ss for this study consisted of 144 baseball, basketball and football coaches in 6 NCAA Division I conferences. Coaches responded to a 20 variable continuum questionnaire with success variables also being reported. Each coach was placed into specific categories of leadership style, strategy and culture according to their responses. The instrument was admin to Ss who responded on 1 of 3 questionnaires. Several statistical methods were utilized in this study to determine the sig diff and relationships among the variables. These include: individual variable m response, category m response, X^2 distribution, 3 way anal, 1 way ANOVA, r matrix, situational contingency tree, winning percentages and t-ratios. Within the limitations of this study the data presented seem to justify the following conclusions: A mechanistic culture produced the highest won-loss percentages for combined coaches, while baseball and football coaches performed best when incorporating a mixed culture and basketball coaches when incorporating an organic culture. The strategy that produced the highest winning percentage for combined coaches was a static strategy, while a dynamic strategy was effective for baseball coaches and a mixed strategy for football coaches.

A football leadership style proved to be most effective for football and baseball coaches, while a basketball leadership style proved to be most effective for basketball coaches. Based on the conclusions of the study, taking into consideration its scope and limitations, the following recommendations are offered: football coaches should consider incorporating an organizational design that possesses little uncertainty, is highly controlled and is rule-regulated; baseball coaches should consider incorporating an organizational design that is adjustable and allows for some degree of freedom and flexibility; basketball coaches should consider incorporating an organizational design that is either highly controlled or one that alters its structure to meet the needs of the team, one that is not a middle-of-the road design.

UNIVERSITY OF CALIFORNIA (R. Park)
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262. AARTS, C.A. The effects of endurance training on lactate clearance from the blood after induced lactacidemia. M.A. in Physical Education, 1987 (G. Brooks)

263. CARLTON, E.B. An investigation of gender-mediated factors in preschool children's overarm throwing development. Ph.D. in Physical Education, 1989 (B.J. Light-Bredemeier)

This study investigated gender-mediated environmental factors which may be associated with diff in F and M throwing dev. Ss were 80 children (42 F, 38 M) ranging from 3 to 5 yr of age (M=4.4 yr) and their parents. The dev of children's overarm throwing patterns was evaluated using Roberton's 5 part component model. Environmental factors investigated focused on opportunity sets available to F and M to dev throwing skill. A questionnaire admin to parents determined information regarding parents engagement with children in gross motor play, provision of gross motor toys, attitudes conducive to sport participation and skill dev for F and M, involvement in sport or rec activities, and masculinity and femininity. Information regarding children's participation in sport or mvmt prog, and the presence of an older sister or brother in the home were also determined from the Parent Questionnaire. Children's play preferences were ascertained from children's responses to illustrations of physical, social or cognitive play activities presented in a fixed pairs comparison format. Results indicated that M on the ave were more advanced in throwing dev than F. R anal revealed relationships between children's throwing dev and several environmental variables. Regression anal revealed participation in sport and mvmt prog and having an older brother to be the best predictors of F throwing dev: father's sport involvement and father-son sport skill play were the best predictors of M throwing dev. Implications were discussed in light of the necessity of recognizing social factors in evaluating diff in F and M throwing dev.

264. JOHNSON, J.A. Skeletal muscle in iron deficient and trained iron deficient rats: mitochondrial ultrastructure. M.A. in Physical Education, 1986. (G. Brooks)

The adaptation of mitochondria ultrastructure of the soleus muscle in rate during endurance training, iron deficiency, and a combination of training and iron deficiency was studied. Weanling rats at 3 wk of age were divided into iron deficient and iron sufficient gps; then subdivided into trained and sedentary gps. Dietary iron deficiency resulted in anemia (Hb 6.84 vs 14.9 g/dl in sufficient gps) and decreased gastrocnemius NADH oxidase activity (88% below iron sufficient gps). Subsarcolemmal and intrafibrillar mitochondria in the trained, iron deficient (TD) animals showed enlargement, sparse cristae and vacuole-like areas compared to the other gps. An increase in the no of lipid droplets in the TD and sedentary, iron deficient (SD) gps was observed. Stereological meas revealed a 99% increase in volume density of the TD animals over the trained, iron sufficient (TS) and control gps and 55% increase over the SD gp. The mitochondria surface density of the TS gp increased 14% compared to the controls, while the TD gp decreased 22%. These results indicate the combined stress of iron deficiency and training produces mitochondrial ultrastructural changes far greater than those of iron deficiency or training alone. The mitochondrial enzymatic changes seen during iron deficiency and training may help to explain accompanying ultrastructural adaptations.

265. KERN, M. Effects of dietary iron-deficiency and anemia on the metabolic responses to submaximal exercise. Ph.D in Physical Education, 1987 (G.Brooks)

Dietary iron-deficiency and erythrocyte transfusion were used to discriminate between the effects of altered O_2 delivery (anemia) and utilization (tissue iron-deficiency) during mild exercise. Glucose metabolism was also studied through the use of [6-^{3}H] and [U-^{14}C] glucose. F Sprague-Dawley rates were raised on either an iron-sufficient (55 mg iron/kg feed) or iron-deficient (15 mg iron/kg feed) diet. These 2 gps were then divided into control and blood manipulated gps. Packed erythrocytes (70% RBC's) were exchanged for withdrawn blood in the blood manipulated, iron-deficient gp (FE-UP, final Hb = 12.7±.3 g/dl) and plasma replacement given to the blood manipulated, iron-sufficient gp (FE+DOWN, Hb = 8.0±.2). The 2 sham gps (FE+SHAM,< Hb = 12.7±.4 and FE-SHAM, Hb = 7.6±.25) had their own blood withdrawn and reinfused. The resting VO_2 of the FE+SHAM rats was 20% higher than all other gps ($p < .02$). Resting blood glucose concentration was sig higher in the anemic animals compared to those with normal hemoglobin levels (4.04±.05 vs

3.34±mM). Glucose recycling rate ($R_t{}^3H$ - $R_t{}^{14}C$) was also higher in the anemic animals compared to the sham control gp (15 ±2.7 vs 2±5.8 uMol/kg·min). The rate of glucose oxidation (R_{ox}), assessed from $^{14}CO_2$ evolution, was sig lower in the FE-SHAM gp compared to tissue sufficient animals (10.2±2.0 vs 16.1±1.1 uMol/ kg·min), even though the % of glucose oxidized was similar. Blood lactate concentrations, R values, glucose turnover rates (R_t), and metabolic clearance rates (MCR) were all similar at rest. During exercise (6.7 m/min, 0% grade), $\dot{V}O_2$ sig increased from rest (p < .001). The FE+DOWN animals increased the $\dot{V}O_2$ to the same level as the FE+SHAM gp, which was sig higher than the FE-SHAM and FE-UP animals (6.69±.35 vs 5.35±.59 ml/min). Exercising lactate concentrations were higher in the anemic animals (1.81±.72 vs 0.9±.21mM), as were glucose recycling rates (40±6.2 vs 5±2.2 uMol/ kg·min), compared to animals with normal hemoglobin levels. R values for the animals raised iron-deficient were sig higher than those raised sufficient (1.06±.45 vs 0.95±.12). No diff in blood glucose concentration, R_t, MCR, % oxid, or R_{ox} were observed between the gps. Plasma insulin concentrations were meas immediately following exercise. The FE-SHAM rats showed elevated insulin concentrations compared to all other 3 gps (P < .05). This was the first time insulin values have been reported in iron-deficient rats. Our findings show similarities between the anemic and iron-deficient, anemic animals at rest, but saw the anemic rats respond to exercise more like the iron-sufficient control animals. The opposite was true of the tissue-deficient animals who received erythrocyte transfusion. These animals seemed 'iron-sufficient' at rest, and deficient during exercise. The overall findings suggest that glucose parameters are more dependent upon hemoglobin level at rest and during exercise, and $\dot{V}O_2$ meas are more closely tied to tissue-iron levels during submax exercise. From this investigation, we see that mild iron-deficiency can be 'repaired' in the resting state by erythrocyte transfusion, but if the stress of mild exercise is placed upon the animal, the iron-deficiency becomes apparent.

266. KLEMPA, K.L. Iron-deficiency decreases gluconeogenesis in isolated rat hepatocytes. M.A. in Physical Education, 1988 (G. Brooks)

Previous investigations have demonstrated that dietary iron-deficiency results in increased blood glucose turnover rates and increased glucose recycling. These results suggest that iron-deficient animals possess increased gluconeogenic capacity necessary to support increased glucose utilization via the Cori Cycle. To asses the intrinsic ability of the liver to carry out gluconeogenesis we meas the rates of glucose production in isolated hepatocytes from iron-sufficient and iron-deficient rodents. Dietary iron-deficiency resulted in a 71% reduction in hemoglobin (14.3±0.34 vs 4.1±0.09 g/dl, for iron-sufficient and iron-deficient animals, respectively). Iron-deficient and iron-sufficient hepatocytes were incubated in the presence of various gluconeogenic substrates which demonstrated sig decreases in the rates of glucose production (umol/g·min) in iron-deficient vs control. Incubation of isolated hepatocytes from iron-deficient rats resulted in a 35 % decrease in the rate of glucose production from 1 mM pyruvate + 10 mM lactate, a 48% decrease from 0.1 mM pyruvate + 1 mM lactate, a 39% decrease from 1 mM alanine and a 38% decrease in the rate of glucose production from 1 mM glycerol. The addition of gluconeogenic modulators, 5 uM norepinephrine, 0.5 uM glucagon and 1 mM oleate, to the incubation media resulted in similar stimulatory effects on hepatocytes from iron-deficient and control rats. However, hepatocytes from iron-deficient rats maintained an average 38% decrease in the rate of gluconeogenesis compared to hepatocytes from control rats. We conclude that severe dietary iron-deficiency decreases gluconeogenesis in isolated rat hepatocytes and that the increase in gluconeo-genesis in iron-deficiency demonstrated in vivo must be due to up regulation from increased avail-ability of gluconeogenic substrates and increased catecholamine response.

267. LOW, C.W. The effects of backpack load, the load's position, and different incline gradients on the human body during free speed walking. M.A. in Physical Education, 1988 (S. Echert)

268. ROARK, R.A. Glycogen depletion in gluconeogenesis-inhibited rats. M.A. in Physical Education, 1988 (G. Brooks)

Glycogen concentrations were meas in both rested and exercised post-absorptive, untrained rats with or without inhibition of gluconeogenesis to evaluate the importance of gluconeogenesis to glucose homeostasis and glycogen sparing in submax exercising animals. Gluconeogenesis was inhibited through the use of mercaptopicolinic acid (MPA), a known inhibitor of the gluconeogenic enzyme, phosphoenol pyruvate carboxykinase. Glycogen levels were meas in liver, cardiac, soleus, superficial vastus and deep vastus tissues after either 35 min of submax exercise at 13.4 m/min on level grade or a comparable time in resting rats. MPA treatment alone had no effect on glycogen concentrations in any of the tissues sampled. Exercise alone resulted in sig decreases in soleus muscle glycogen concentrations (38%) and in superficial vastus muscle glycogen concentrations (39%) in comparison to resting controls. The combination of MPA treatment and exercise resulted in sig decreases in glycogen concentrations in liver (93%), cardiac (63%), soleus (58%), superficial vastus (68%) and deep vastus (82%) tissues when compared to MPA-treated, rested animals and in the same tissues when compared to sham-injected, exercised animals (95%, 65%, 43%, 47%, and 63% respectively). These results are consistent with the results of tracer studies using [U-^{14}C]- and [6-^{3}H] glucose to examine glucose turnover, recycling and oxidation rates in rats with gluconeogenesis inhibition due to MPA treatment. It was found that glucose turnover was decreased, glucose cycling was inhibited, plasma glucose concentration was decreased and plasma lactate concentration was increased in submax exercised rats treated with MPA compared to sham-injected rats. The results of this study indicate that gluconeogenesis plays an important role in glucose homeostasis and glycogen sparing in the submax exercising rat.

269. ROTH, D.A. Carrier mediated lactate transport across rat skeletal muscle sarcolemmal vesicles. Ph.D. in Physical Education, 1989 (G. Brooks)

Muscle may produce or consume lactic acid, depending on its perfusion and state of contractile activity. One possible barrier to the flux of this important metabolic intermediate is the muscle cell's plasma membrane. Kinetic anal of lactate mvmts would also characterize mechanisms of other ionic fluxes, which will aid in elucidating control and regulation of intermediary metabolism and pH within and between cells and tissues of animals under a variety of metabolic challenges. The purpose of these studies was to characterize lactate transport and inhibition of transport, across the plasma mmembrane of rat skeletal muscle at various temp, pH, and ionic conditions. To isolate these mechanisms, skeletal muscle sarcolemmal (SL) membrane vesicles were purified from sedentary (n=22), F Sprague-Dawley rats. Fraction (F2) SL membranes were harvested from the 27% layer of a discontinuous sucrose density gradient after diff centrifugation and purification techniques were performed. F2 had a 34.67 ± 2.98 -fold purification index of the plasma membrane enzyme marker K^+-stimulated p-nitrophenyl- phosphatase (K^+PNPPase) as compared to the crude homogenate. Lactate (La^-) transport by SL vesicles was meas as uptake of L(+) or D(-) [U-^{14}C] lactate at 10 buffered concentrations. All data were corrected for the small amount of La^- bound to vesicles and retained by membrane filters at time 0. Uptake remained linear for at least 20 sec, therefore all data are expressed as initial rates of uptake in nanomoles per mg of SL protein per min; Lactate is saturable with respect to concentration, with a Vmax of 139.4 nmol/mg/min, and an apparent Km of 40.1 mM as determined by weighted least squares fit to Lineweaver-Burke plots. La^- transport was stereospecific: isotopic D(-) uptake rates remained nearly linear at concentrations from 1-200 mM, and 1 mMD(-) remained 6-fold lower in net uptake after 60 min than the L(+) isomer. Furthermore, unlabeled 10m M (D-) lactate in the external medium could only inhibit ImM isotopic L(+) uptake by 12%, whereas unlabeled 10 mM L(+) lactate and pyruvate inhibited 82 and 71%, respectively. Isotopic pyruvate could utilize the transporter, and demonstrated pH gradient-stimulated overshoot and similar cis - inhibition characteristics to lactate. 3 fold higher initial rates of L(+) La^- uptake were seen at 37°C than at 25°C. The SL transporter is pH sensitive; stimulations to 5 fold overshoot above equilibrium values were observed both directly by a proton gradient directed inward, and indirectly by a monensin- or nigericin- stimulated exchange of Na+ or K+ for H+ across the SL. Overshoot kinetics were also demonstrated by pH gradients formed by manipulation of external medium buffers at pH 5.9, 6.6 and 7.4 and intravesicular buffers at 6.6, 7.4,and 8.0 respectively. CCCP, an H+ ionophore, was used as a "pH clamp" to return all stimulated uptake courses back to equilibrium values. Lactate uptake was depressed when internal pH was lower than external pH. In addition, DIDS(an inhibitor of the inorganic anion exchanger in red cells) could inhibit L(+) lactate transport by only 13%, so that lactate transport does not appear to be affected directly by Cl- or HCO_3 fluxes. These data strongly suggest that La$^-$ and H+ are either cotransported by the carrier, or transported as the undissociated HLa, and can account for the majority of the lactate uptake at pH 7.4. However, at pH 5.9, passive diffusion of undissociated lactic acid may increase its contribution to net uptake, but the majority of flux is still handled by the carrier. The mechanism does not require cotransport of either K+ or Na+, a finding distinctly diff from renal and intestinal La$^-$ transport. An inwardly - directed Na+ gradient without ionophore or pH gradient doubled La$^-$ transport; treatment with amiloride, an inhibitor of the Na+/H+ exchanger, abolished this stimulation, suggesting that this transporter may be an important co-regulator of intracellular pH, and could disrupt 1:1 H+ and La$^-$ efflux stoichiometry in vivo. Valinomycin, a K+ ionophore, was used in the presence of equal [K+] in IM and EM to provide a "voltage clamp" across the membranes. It was demonstrated that neither Na+ nor K+ chloride salts could evoke a membrane potential-induced overshoot of La$^-$ uptake in the presence or absence of valinomycin. Moreover, gluconate (an impermeant anion) could substitute for Cl- with either cation in the EM, indicating that Cl- flux does not contribute to a membrane potential - dependent component of the transport mechanism. Together, these data suggest an electroneutral translocation process. To test the possible adaptability of the transporter protein, the membranes from 8 endurance - and 9 sprint-trained (treadmill running) rats were tested against 10 age-matched sedentary controls for alterations in lactate kinetics and transport characteristics. Despite sig skeletal muscle training effects, neither mode of exercise training sig altered lactate transport rate or capacity, although there was an apparent trend for an increase in Vmax and a decreased Km. There could be, however, fiber type specific changes in transporter activity masked in the present study due to intermixing of fiber types during the isolation procedure. It is concluded that the majority of La$^-$ crosses the skeletal muscle SL by a specific carrier-mediated process that is saturable at high La- concentrations, but flux is augmented at low pH_i by undissociated lactic acid. In addition, a Na+/H+ exchange mechanism was confirmed in skeletal muscle SL, does affect both lactate and proton flux, and is potentially an important coregulator of pH_i, and thus cellular metabolism.

270. STANLEY, W.C. Lactate kinetics in man at rest and during exercise. Ph.D. in Physical Education, 1986 (G. Brooks)

271. TURCOTTE, L.P. Glucose kinetics at rest and during exercise in gluconeogenesis-inhibited rats. Ph.D. in Physical Education, 1988 (G. Brooks)

To evaluate the role played by gluconeogenesis in blood glucose homeostasis, untrained and trained rats were injected with mercaptopicolinic acid (MPA), a known inhibitor of the gluconeogenic enzyme, phosphoenolpyruvate carboxykinase. Glucose turnover, recycling and oxidation rates were assessed by primed-continuous infusion of [$U^{14}C$]- and [6-3H] glucose at rest and during submax exercise at 13.4 m/min on level grade. When compared to the untrained sham-injected animals, the untrained MPA-treated animals had 22% lower (5.92 vs 7.62 mM) and 44% higher (1.90 vs 1.32 mM) resting blood glucose and lactate concentrations, respectively. Resting glucose turnover, calculated from [$6-^3H$] glucose, was 32% lower in the MPA-treated animals (53.4 $umol \cdot kg^{-1} \cdot min^{-1}$) than in the sham-injected animals (78.5 $umol \cdot kg^{-1} \cdot min^{-1}$). During exercise, turnover increased to 125.7 $umol \cdot kg^{-1} \cdot min^{-1}$ in the sham-injected animals but remained unchanged in the MPA-treated animals. MPA-treated animals had no glucose recycling at rest or during exercise.

Exercise further decreased blood glucose concentration (35%) and increased blood lactate concentration (160%) in the MPA-treated animals, but MPA treatment did not change the exercise-induced increases in glucose oxidation rate, % total VCO_2 arising from glucose oxidation and metabolic clearance rate of glucose. At rest, the trained MPA-treated animals had lower blood glucose concentrations (18%) and higher blood lactate concentrations (100%) than the trained sham-injected animals. Glucose turnover rate for the MPA-treated animals (88.9 $umol \cdot kg^{-1} \cdot min^{-1}$) was lower (33%) than for the sham-injected animals (133 $umol \cdot kg^{-1} \cdot min^{-1}$). Training increased glucose turnover in both gps of animals but there was still no glucose recycling in the trained MPA-treated animals. Whereas resting and exercise-induced glucose oxidation rates were similar in both gps of trained animals, metabolic clearance rate during exercise was higher in the trained MPA-treated animals. Training increased the rate of glucose oxidation and metabolic clearance rate in both gps of animals. Although there were diff in glucose kinetics between untrained and trained MPA-treated animals, there was no diff in their running time to exhaustion (35.5 min). These results suggest that gluconeogenesis plays an important role in blood glucose homeostasis, especially during prolonged submax exercise. Training adaptations do not protect against the early development of hypoglycemia and lactacidemia in MPA-treated animals.

272. VIGUIE, C.A. Blood glutathione oxidation during human exercise. M.A. in Physical Education, 1988 (G. Brooks)

To examine the effects of exercise O_2 utilization on the glutathione antioxidant system in blood, 8 moderately active M volunteers were exercised to VO_2max and for 90 min at 65% of VO_2max on a bicycle ergometer. Blood samples were taken during exercise, and up to 4 days of recovery from submax exercise. During exercise to VO_2max, glutathione (GSH) and total glutathione (GSH + oxidized glutathione, GSSG) did not change sig. Lactate, pyruvate, and the L/P ratio increased from rest values ($P < 0.01$). During prolonged submax exercise, GSH decreased 60% from control and GSSG increased 100%. Total glutathione, glucose, lactate, pyruvate concentrations, and the L/P ratio did not change sig during sustained exercise. During recovery, reduced glutathione and GSH/GSSG rose and sig overshot pre-exercise control values reaching a max in 3 days. Oxidation of GSH and its reduction in recovery indicates an increase in active O_2 radical species in blood during physical exercise in moderately active M.

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273. ANTRIM, L.J. The effects of gender and aging on controlled information in older adults. M. Ed. in Health, 1987

Diff between the genders in motor abilities are often demonstrated in the lit. Lateralization, genetics, exp, or combinations or the 3 are cited as reasons for such diff. In addition, reduced motor performance is frequently associated with advancing age and structural changes in the brain. To determine if there are gender diff in controlled information processing abilities in older adults and if these diff change across the aging yrs, assessments were admin to a gp of retirees using a battery of perceptual /motor tests dev by the Univ of Cincinnati and the A.A.R.P. Andrus Foundation. 98 senior adults, ranging in age from 60-72, were stratified by gender and randomly assigned to a M or F test admin and to a spatial or temporal exp. In each exp, Ss were tested on 10 controlled information procession capacities which are precursive to motor output (i.e., attention, anticipation, coincidence, projection, tracking, adjustment, reproduction, integration, interpolation, and extrapolation). Exp generally demonstrated no main or interaction effect for gender of the S, gender of the experimenter, or age, at the .00416 Bonferroni alpha level.

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274. CHOU, H.S. Perceived movement purposes among physical educators in Taiwan Republic of China. Ed. D. in Physical Education, 1989 (A. Jewett)

The purpose of this study was to determine whether the mvmt purposes identified in the Purpose Process Curr Framework (PPCF) can provide a valid and appropriate framework for PE curr dev in Taiwan. The study involved 3 gps of physical educators: students majoring in PE in their senior yr of univ and coll, specialists and physical educators in secondary schools, and researchers and scholars of PE in univ and coll from Taiwan. Questionnaires containing a listing of the 22 purposes in the PPCF, translated into Chinese, were sent to respondents who had agreed to participate in this study. The respondents were asked to rate the importance of the purpose statements for both the present and the future and to state any additional purposes. The total number of Ss included in the anal was 417: 150 major students, 130 practitioners and 137 professors. Reliability of the questionnaire was established using the test-retest technique with the student portion of the sample. M and SD were computed for each purpose, for both the present and the future. 1 way ANOVA was used to determine whether there were diff among gps for each present and future purpose. A 2 way repeated meas ANOVA was calculated for each purpose to determine whether there was a diff between present and future ratings for each gp. Ranking of the purposes by mean ratings indicated whether or not each gp had a diff order of importance of the purposes. The following findings resulted from this study: (1) Mvmt purposes defined by the PPCF were highly valued among physical educators in Taiwan, R.O.C.; (2) The physical educators from Taiwan saw a majority of the purposes becoming more important in the future than at present; (3) There were no additional purposes for moving that could be clearly identified by physical educators in Taiwan; (4) The 3 gps of respondents (major students, practitioners, and professors) diff from each other in their ratings of the purposes; (5) The present ratings of the purposes diff from the future ratings of the purposes.

275. DELP, M. Blood flow response in normal and denervated muscle during exercise in conscious rats. M.A. in Physical Education, 1988 (R. Armstrong)

The purpose of this study was to test the hypothesis that extrinsic mechanical factors, i.e. the dynamic shortening and lengthening imposed on a muscle during limb mvmts and the rhythmic compressions as surrounding muscles contract and relax, contribute to the initial muscle hyperemia during locomotion in conscious M Sprague-Dawley rats. Soleus and lateral head of gastrocnemius muscles were surgically denervated in one hindlimb several hr prior to exercise to remove a) local metabolic vasodilator effects, b) vasoconstrictor or vasodilator influences mediated through sympathetic postganglionic fibers, and c) intrinsic mechanical pumping. Blood flow was meas with radioactive microspheres during pre-exercise and at 30 s and 5 min of exercise in rats running at 15 m/min on a motor-driven treadmill. Glycogen concentrations were also meas as an indicator of muscular activity to verify the denervation. Blood flows to control muscles in the normal limb were similar to previously reported values during pre-exercise and exercise. Denervation, however, decreased pre-exercise blood flow (69-88%) to muscles composed predominantly of oxidative fibers, and increased flow (53%) to muscle composed predominantly of glycolytic fibers. During exercise, blood flow to denervated muscles either remained unchanged or decreased. These data suggest that extrinsic mechanical factors do not sig contribute to the initial hyperemic response at the onset of exercise in normal muscle.

276. DEMPSEY, S. The process involved in adopting a lunch time master swimming program by middle-aged adults. Ed. D. in Recreation and Leisure Studies, 1988 (J. Keller)

This study investigated the Rec Activity Adoption Process for a select gp of adults, aged 30-55, who participated in the Univ of Georgia Faculty-Staff Lunch Time Swimming Prog. Further, the conceptual model of how individuals adopt rec activities dev by Brandenburg, Greiner, Hamilton-Smith, Scholton, Senior, & Webb (1982) was tested for validity. Validity was tested by comparing the principle elements of the conceptual model to the participants' perceptions of rec activity selection. This qualitative study employed participant observation, structured and unstructured interviews which heuristically investigated the rec activity adoption process. This study was triangulated in instrumentation and anal. It occurred in the natural setting of Stegemen Hall Pool and the Lunch Bunch prog. This study was important to the growth and dev of the body of knowledge in Rec and Leisure Studies as it identified reasons why adults selected swimming as a rec activity and what it meant to them. This may have helped strengthen the Masters Swimming Prog. This study has yielded further insights about participants, which may eventually direct the dev of better prog offerings and marketing strategies to accommodate individual's needs.

277. HOPE, D. Development and implementation of a methodological approach for determining the relationship of users of a local public recreation agency to the economy of a rural Georgia county: A case study. Ed. D. in Recreation and Leisure Studies, 1988 (Z. Howe)

The 3 part problem of this study, concerned with expenditure patterns of users of a local public rec agency's prog and facilities, was: (1) to dev and test an economic impact assessment instrument that could be used to allow easy and inexpensive collection of data; (2) to evaluate the state-of-the-art of economic impact assessment of rec at the local level; and (3) to provide guidelines for estimating the quantities and distribution of related business activity. The primary emphasis of this study was to field test the instrument dev. The procedure consisted of a review of the lit and a subsequent design and testing of an instrument. The rec economic impact assessment lit showed input-output anal and the U.S. Forest Service's IMPLAN input-output model to be state-of-the-art. The Public Area Rec Visitors Survey (PARVS) project at the fed and state levels incorporated IMPLAN and was identified as the only nationwide attempt to standardize data collection methods and techniques for assessing economic impact. The 3 instruments used by PARVS were modified and merged into a single instrument, LPARVS, for use at the local rec level. The LPARVS instrument was field tested on a purposely selected sample from the population of users of the study county's rec prog and facilities. Field testing results indicated that further revisions of the LPARVS instrument would be required for it to be effective for data collection at the local level. Some demographic information and rec activity preference data were gathered, but they were sparse. Insufficient user expenditure data and the logistical complexities of the IMPLAN model at the time of this study made its use for anal impractical. This study extended the work of the PARVS project and represented the first attempt to adapt the instruments and anal techniques of PARVS for use at the local level.

278. JONES, T. Rat hemodynamics during laddermill climbing. Ph.D. in Physical Education, 1988 (R. Armstrong)

Rats are relatively poor performers on the treadmill, but they readily adapt to climbing as a form of exercise. 5 F rats from an initial gp of 24 F Sprague-Dawley rats refused to run on a motor-driven treadmill, but all of them would climb on a laddermill with a 75° incline. The purpose of this study was to examine whether laddermill climbing elicits similar CV responses to those previously reported for rats running at comparable metabolic rates on the level treadmill. Meas of VO_2, HR, m arterial pressure and blood flow were made on the laddermill at pre-exercise and after 1 min of climbing. These results were then compared with similar meas made on the level treadmill by Laughlin and Armstrong (1982). During laddermill climbing at 5 m/min, HR was 543 ± 15 bpm and m arterial pressure was 134 ± 11 torr, which correspond to a HR of 542 ± 11 bpm and a m arterial pressure of 122 ± 5 torr at 45 m/min on the level treadmill. All individual muscle blood flows from the laddermill were higher (m of 9%) than blood flows from the treadmill. Soleus and white gastrocnemius muscles received app 32% and 105% higher flows, respectively, during laddermill exercise. In conclusion, the laddermill is a good alternative to the treadmill because similar CV responses are elicited and even the poorest treadmill runners will readily climb on the laddermill.

279. KING, K.B. The use of triangulated methods as implemented in the evaluation of the 1987 Southeast Therapeutic Recreation Symposium.

Ed.D. in Recreation and Leisure Studies, 1988
(Z. Howe)

Research has shown continuing educ to be important to the field of therapeutic rec. 1 objective of this study involved a desire to contribute to the body of knowledge in the area of evaluation research by testing and verifying the value of a triangulated evaluation approach within a continuing educ setting. The major purposes of the study were to dev valid, reliable, and practical evaluation instruments; to evaluate the implementation of prog; and to evaluate the utility of prog content. Ss consisted of the registered participants in the Symposium (N=127), the exhibitors (N=3), the planning committee (N=10), and the conferees who were systematically chosen to participate in the User Phase of the study (N=14). Instruments were designed to collect demographic information, evaluate session content and leader effectiveness, determine planning committee effectiveness, determine exhibitor satisfaction, and evaluate overall Symposium effectiveness. These instruments were found to be appropriate and effective. Written instruments were validated through the use of interviews, a critique of the instruments by the participants, and the participant's observation of all phases of the Symposium: facilities, food service, socials, special events, concurrent sessions and conference coordination. The results showed that participants were highly satisfied with all of these phenomena. Convergence was found between the methods used to collect information. The User Phase of the study yielded insights into the usefulness of the material presented. It also investigated the participants ability to predict the usefulness of the material and the factors relating to those responses. It was found that the primary element contributing to participant satisfaction was usefulness as shown in 73% of the cases. It was found that participants were relatively unsuccessful in predicting the usefulness of session material. Initial session evaluations were very pos. Follow-up interviews revealed poor recall and low rates of actual use of the content presented. Recommendations were made for future symposia in the areas of theory, methodology, and practice.

280. NORTON, K. *Determination of possible limitations of VO^{2max} using a blood volume overload in pigs*. Ph.D. in Physical Education, 1988 (R. Armstrong)

In order to study the possible limitations (central vs peripheral) or VO_{2max}, 7 trained miniature swine ran at supramax intensities (estimated at 115% VO_{2max}) on a treadmill on 2 occasions, 1) once during normovolemia (NV), and 2) once following an acute 15% blood vol overload (HV) (homologous whole blood). MMeas of VO_{2max}, Q_{max}, HR, m arterial pressure($\bar{P}a$), and the distribution of blood flow (microspheres) were made during the exercise bouts. Max HR was identical between conditions (M = 266) and Pa was_elevated during the HV exercise (135 vs 149 mmHg; $\bar{P} < 0.05$). Although Q_{max} was higher during the HV condition (9.3 vs 10.5 l min-^{1}; p < 0.05), VO_{2max} was not diff (1.74 vs 1.74 l min^{-1}). M peak blood flows to coronary, locomotory, and respiratory muscles were all elevated (p < 0.05) during HV exercise, while systemic a-$\bar{v}O_2$ diff was reduced (18.9 vs 16.9 ml O_2/100 ml^{-1}; p < 0.05). The changes in blood flow were the result of increased perfusion pressure since calculated resistances were not diff between conditions. These data indicate that O_2 diffusion at the level of the muscles was limiting during NV and HV exercise as a result of either rapid capillary transit times or saturated oxidative pathways. The results also indicate coronary blood flow does not limit myocardial performance since both the pumping capacity of the heart, and the coronary blood flow were elevated in the HV condition.

281. YORIO, J. Physiological and psychological correlates of breathlessness during graded exercise in asthmatic individuals. Ed. D. in Physical Education, 1989 (R. Dishman)

The purpose of this study was to describe the predictive relationship between self-reported ratings of breathlessness and selected physiological and psych variables during graded cycle exercise at intensities of 300, 450, and 600 kpm/min in asthmatic individuals and to compare this relationship with a matched control gp. 25 medicated F asthmatics and a control gp of 25 non-asthmatic F were matched for age, peak $\dot{V}O_2$, trait anxiety, 7 day recall of physical activity, ht, wt, and body mass index (BMI). Ss were admin a graded, intermittent cycle ergometer test to $\dot{V}O_2$peak cycling for 5 min stages at 50 rev/min interspersed with 3 min rest periods. The initial resistance of 1 kp was increased by .5 kp at each stage until voluntary exhaustion. Hr, min ventilation, $\dot{V}O_2$, and RPE and breathlessness were assessed in the final 30 sec of each stage. Pulmonary function meas, ratings from Spielberger's 10-Item State Anxiety Inventory, and blood lactate levels were assessed following each work stage. A hierarchical multiple linear regression model for the prediction of breathlessness, was constructed from the ordered entry of % $VO_{2\ peak}$, blood lactate, ventilatory equivalent for oxygen (VE/VO_2), state anxiety, and RPE. It was hypothesized that the regression model would sig account for variance in breathlessness for each gp and that the model would not differ between the gps. It was also hypothesized that the independent contributions of state anxiety and RPE would be greater for asthmatics than for controls at the higher exercise intensities. Results indicated that at 450 and 600 kpm/min the regression model predicted breathlessness for asthmatics ($\underline{p} < .008$). At each work rate for each gp RPE was the sig predictor in the model ($\underline{p} < .05$). Absolute RPEs and breathlessness did not differ between the gps at any work rate. Blood lactate levels at rest and at all work rates were higher in asthmatics ($p < .05$), but other exercise responses were similar between the gps. At the higher intensities more variance in breathlessness was explained for asthmatics than for controls. Adjusted R^2s for the asthmatics were: .86 and .85 and for the controls: .30 and .53 at 450 and 600 kpm/min, respectively. At 450 kpm/min the contribution of RPE to the full model was sig greater ($p < .025$) for the asthmatics when compared to controls. The findings indicate that the sensation of breathlessness in young F asthmatics during exercise of moderate and high intensity is influenced by perceived exertion to an extent greater than that observed for control Ss. The origin of this diff is unknown, but it is not due to age, ht, wt, BMI, trait anxiety, 7 day recall of physical activity, resting pulmonary function meas, or exercise responses including % $\dot{V}O_{2\,peak}$, blood lactate, VE/VO_2, and state anxiety.

282. ZIMMERMAN, L.I. Comparisons of predicted and actual reliability coefficients for selected multiple trial physical performance data. Ph.D. in Physical Education, 1988 (T. Baumgartner)

2 models utilized to predict reliability coefficients exist but have never been validated. The accuracy of the predicted coefficients from a model presented by Feldt and McKee (1958) which enables the prediction of reliability coefficients for multiple trial data admin on more than 1 day and a model presented by Safrit (1976) which enables the prediction of reliability coefficients for multiple trial data admin within a single day were studied. Predicted coefficients were calculated utilizing the variance components from ANOVA summary tables based on the max no of trials, and based on the min no of trials. Trial-to-trial trend in the data had little effect on the accuracy of the predicted coefficients when utilizing the Feldt and McKee

model. The effect of trend in the data on the predicted coefficients for the Safrit model was not established in this study. In general, the predicted coefficients from the Feldt and McKee model tended to be accurate, with 2 exceptions, the predicted coefficients on a single day, and the predicted coefficients from a min no of trials for data containing a large no of trials on each day. The predicted coefficients from the Safrit model were accurate but the accuracy was questionable for data containing a large no of trials in a single day.

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283. HAE, C.H. Moral reasoning and development among general students, Physical Eduction majors, and student athletes. Ph.D. in Education, 1989 (S. Stoll)

The purposes of this descriptive, philosophical study were 1) to compare moral reasoning and moral dev among general students, students majoring in PE, and student athletes in Korea and the USA and 2) to describe the longitudinal moral dev or changes in PE and sport from the past and present. Because of current unethical or immoral behaviors in PE and sport, PE majors and student athletes were compared with general students to discover how and why they think or reason diff in certain moral situations. The longitudinal moral dev or changes in PE and sport were also briefly discussed based on the empirical results. 2 moral questionnaires were used: (1) the Defining Issues Tests (DIT) which dealt with general social immoral dilemmas based on Kohlberg's cognitive dev theory, and (2) the Hahm-Beller Values Choice Inventory which dealt with sport related moral dilemmas based on deontological (normative) ethics. The independent variables were nation, gp (student type), and gender, while the DVs were the scores of the 2 questionnaires. 197 American and 283 Korean students completed the Hahm-Beller Values Choice Inventory and 87 American and 249 Korean students completed the DIT. The results were frightening in that PE majors and student athletes had sig lower scores than general students in deontological moral reasoning and had less principled moral thinking than general students in both Korea and America. In addition, American student athletes had the lowest scores in deontological moral reasoning in respect to 3 universal values: honesty, responsibility, and justice. When comparing nation and gender, Korean students had higher deontological scores than Americans, while American students had high P scores, principled moral thinking, than Koreans. Gender diff was also detected in that F had more deontological reasoning and principled moral thinking than M. The variability of these results may be due to the nature of morality which is notoriously controversial, diverse, and conditioned by exp and circumstance. That is, (1) educ background, (2) social circumstance, and (3) cultural diff may affect student choice in moral questions.

284. MULLEN, K.J. A descriptive study of the use of feedback by an experienced ballet instructor. M.Sc. in Physical Education, 1989

The purpose of this study was to describe the incidence of selective fb statements an exp teacher provided in beginning and advanced ballet classes at the univ level. Specifically this study addressed: (1) the rate of selective fb as to general-pos, general-neg, corrective-specific, and specific-pos in each lesson; (2) the variation of type and frequency of fb across 10 lessons; (3) the variation in frequency of fb during each lesson; (4) the distribution of fb to low-, ave-, or high-skilled students; and (5) the comparative incidence of fb to beginning and advanced level classes. Video taping of instruction was carried out over 10 consecutive lessons for both the beginning and advanced classes. The teacher fb statements were then coded with regard to the type and distribution of fb. These data were expressed as fb per min of instruction. The data anal revealed corrective-specific to be the predominant type of fb given by the instructor to both Ballet 1 and Pre-professional Ballet students. General-pos was the second most frequently used type of fb. In both classes, the instructor gave individual fb more than gp. Whole class fb was given the second most often to Ballet I students, whereas the instructor gave fb to small gps more often in the Pre-Professional class. Individual fb was given about equally to the low- and ave-skilled stdnts in Ballet I. Pre-Professional Ballet, however, showed a linear increase in frequency of fb with increasing skills levels. No distinguishable pattern emerged in the frequency or type of fb given across the 10 lessons of instruction for either class. The amt of fb given diff during various segments of each lesson. These diff reflected the changes in class activity. The frequency of fb decreased during the more complicated portions of the class and increased during segments of the lesson which were devoted to skill refinement.

285. PARK, J.G. An analysis of high school physical eduction curriculum in the Republic of Korea. M. Sc. in Physical Education, 1988

The purpose of this study was to describe aspects of the PE curr in the HS of the Republic of Korea and to compare selected aspects by school gender (M/F/coed), type (public/private), and location (urban/rural). More specifically, this paper examined: (1) aims and objectives, (2) lesson and unit components of planning, (3) selection of activities, (4) activities taught, and (5) evaluation. A questionnaire was mailed to 500 HS and 423 (84%) were returned for anal. Frequencies and percentages were computed on the quantitative responses. For comparisons on selected data, statistical anal were conducted using non-parametric techniques (x^2 and Kruskal-Wallis). Teachers considered social behavior and setting attitudes about physical activities for adult living as the most important aims of PE. These teachers ranked space and equipment and class level of skill the highest in determining what to teach in a unit of instruction. They regarded clear explanations, demonstration, and fun and enjoyment as the most important factors for a good lesson. Selecting learning activities was ranked first among planning components. In general, the HS curr is quite similar throughout the Republic of Korea regardless of school gender, type, or location. The highest percentage of time spent in grouped activity categories is in self-testing activities and team sports which comprise about 2/3 of the curr. Track and Field, tumbling and gymnastics, volleyball, basketball, and soccer (except F schools) accounted for the majority of time spent on activities within these categories. Almost all teachers relied on skill and written tests to assess students learning.

286. WARNOCK, N. A study to determine the effectiveness of glucose polymer supplementation on work performance during strength training.

The purpose of this study was to examine the effect of a glucose polymer supplement (Exceed,® Ross laboratory) on strength training performance. Using a double-blind protocol, 9 trained M wt lifters ingested prior to and at the midpoint of the exercise session either 300 ml of a glucose polymer (protocol B, protocol A), a non-carbohydrate solution of similar taste and color or a combination of protocol A and B (protocol AB) on 3 separate occasions. Each S's 1 rep max for each wt station was determined prior to the treatment sessions. VO_2, and respiratory exchange ratio (RER) were meas at rest and during each exercise wt station. Venous blood samples were drawn at rest and at the end of each session and anal for serum glucose and blood lactic acid. Total work for each session was determined from wt lifted multiplied by the distance traveled. Results showed no sig diff in VO_2, RER, serum lactic acid concentration, and total work performance as a result of glucose polymer supplementation. However, following exercise blood lactic acid concentrations were sig greater regardless of glucose polymer supplementation. Also there were sig diff in serum glucose concentrations between protocols, protocol B was the highest followed by AB and finally A. This study showed no sig improvements in wt lifting performance as a result of glucose polymer supplementation. However, additional studies incorporating greater total work may reveal training improvements as a result of such supplementation.

UNIVERSITY OF ILLINOIS **(M.Kneer)**
CHICAGO, ILLINOIS

287. CZERWINSKI, S.M. Prevention of glucocorticoid induced muscle atrophy by exercise: Potential mechanisms. Ph.D. in Physical Education, 1988 (R. Hickson)

High circulating concentrations of glucocorticoids are known to produce marked skeletal muscle wasting. The first goal of this research was to determine whether the simultaneous onset of regular daily exercise with glucocorticoid treatment impedes the accompanying atrophy. Initiation (with simultaneous glucocorticoid-treatment) of an 11 day exercise prog prevented muscle mass loss by 60% in the plantaris muscles and 25% in the gastrocnemius muscles of F rats. These data support the hypothesis that entering into an exercise prog can be effective in retarding glucocorticoid-induced muscle atrophy. This exercise model was then used to determine whether atrophy prevention by exercise is mediated in the regulation of a glucocorticoid-responsive protein, skeletal muscle myosin heavy chain (MHC). Cortisol acetate treatment caused 35% decrease in plantaris MHC fractional synthesis rates. Exercise alone, or with cortisol treatments had no effect on MHC synthesis rates in these muscles. However, exercise did cause a decrease in the fractional rate of plantaris MHC protein breakdown in glucocorticoid treated animals. These results suggest that one way exercise acts in retarding the atrophy is through changes in protein breakdown rather than protein synthesis. In a comparison study, cardiac MHC fractional synthesis rates were examined in hearts that had enlarged from glucocorticoid treatment. Ventricular wt began to rise by 3 days, peaked at 7 (11-13%), then declined over the 11th and 15th day of cortisol acetate treatments. The MHC synthesis rates did not increase during the enlargement phase and decreased to 44% (7 & 111 day) of control rates prior to the reversal of cardiac growth (15 days). MHC breakdown rates decreased during 7 and 11 days of cortisol acetate treatment, but returned to control levels by 15 days. These results suggest that the glucocorticoid-induced enlargement of the heart is a biphasic effect with myosin heavy chain synthesis rates playing a role in the reversal of cardiac enlargement, but in the growth phase. Another route by which exercise may prevent glucocorticoid-induced muscle atrophy is through a defect or alteration in steroid-receptor events and specifically the activation of the steroid-receptor complex. To first establish a direct effect of glucocorticoids on steroid-receptor functioning in target tissues, an isolated, perfused heart model was used. Receptor binding and activation began to occur within 30s of perfusion containing only [^{3}H] triamcinolone acetonide and 5mM glucose, and reached a steady state by 10 min ($t_{1/2}$=4.6 min) of perfusion. The appearance of the 2 activated receptor peaks on DEAE-cellulose, termed binder I and II occurred with half-times of 1.3 min and 2.7 min respectively. These results suggest that glucocorticoids are able to exert a direct effect on the heart through binding to their own receptor in the absence of endogenous hormones. The time dependency of receptor activation supports a physiological role for this process. However, activation rates, determined form conformational changes associated with altered DEAE-cellulose elution profiles and appearance of activated receptor forms, occur earlier and may not be coordinated with the rate of activation as quantified by DNA-cellulose binding. The next step was to investigate glucocorticoid--receptor activation in various muscle types. A definite pattern exists in the formation of the activated glucocorticoid-receptor complexes among diff types of muscle. Fiber types that enlarge from glucocorticoids (heart) contain the highest relative distribution of binder II and lowest content of binder IB. Fibers that atrophy from glucocorticoids (white muscle) contain negligible content of binder II and the highest appearance of binder IB. The final investigation involved the examination of in vivo glucocorticoid receptor activation and the effect exercise exerts in various skeletal muscle types and heart. Our results demonstrate a similar time-dependent activation in all muscle types studied. Endurance exercise (up to 90 minutes) did not alter activation of the glucocorticoid receptor from the patterns observed in sedentary animals in any fiber type.

288. DVORAK, B.L. Strength training effects on running and cycling in endurance trained subjects. M.S. in Physical Education, 1987. (W.Palmer)

The purpose of this study was to determine the effects of strength training on endurance performance during cycling and running in well-trained SS. 6 Ss participated in a heavy resistance exercise prog (3 days/wk for 10 wk) that was designed to strengthen the lower limbs exclusively. All Ss, prior to the start of the strength phase, had attained a steady state level of endurance, and continued to follow the same endurance regime during the 10 wk strength phase. Following the combined strength and endurance training, no sig changes occurred in bw, % bf, or thigh girth. Ave strength (parallel squat, knee extension and knee flexion) increased 34%. There was no further improvement in VO_2max during cycling or treadmill running when expressed in absolute or relative terms. Short-term endurance performance during max exercise tests increased 14% during both cycling (353 ± 13 to 404 ± 21 sec) and treadmill running (365 ± 21 to 416 ± 27 sec). Long-term endurance improved during cycling to exhaustion (from 71 ± 8 to 81 ± 8 min). Although there was an overall improvement of 52 sec during the 10K running tests, 1 S who was the fastest runner (10K = 35 min, 48 sec) and had the highest VO_2max (66.9 ml/kg/min) did not improve. In 3 Ss in which biopsies of vastus lateralis muscle tissue was obtained, citrate synthase activity was decreased by 11% following the strength and endurance training. These results indicate that there is a complete absence of any neg effects of adding strength training to a regular prog of endurance in well-conditioned individuals. While strength and short-term endurance both increased sig, the magnitude of the increases were less when compared to training exclusively for strength. These results indicate that strength training does not consistently increase long-term running performance, but appears to induce a consistent improvement in long-term cycling.

289. GENO, R.A. Survey of selected NCAA Division I drug testing and education programs. M.Sc. in Physical Education, 1987. (R.Chambers)

The purpose of this study was to provide current data regarding the status of drug testing and drug educ prog in NCAA Division I institutions. The investigation sought to identify the percent of institutions which intend to develop, are developing, or have implemented prog, and the reasons why they have (or have not). Additionally, the sources for prog funding, whether schools with winning traditions or frequent postseason appearances were implementing drug prog sooner than those schools with no tradition, legal concerns, testing site, personnel, and who among the student population had availability to the prog, were identified. This study utilized a descriptive design employing a questionnaire which was tested to be valid (4.5/ Likert Scale) and reliable (93.3%). A nationwide representative sample of AD (or their designees) was surveyed (n = 156), of which 93 responded (60% response rate). k Public schools (67%) outnumbered private institutions (28%). Enrollment figures were reported to be: 32.5% (less than 10,000 students), 32.5% (10,000 -20,000), 18% (20,000 - 25,000), and 17% ($25,000^{+}$). Results of the study revealed that 60% of the 93 responding institutions have already established prog in drug testing and educ. Of the institutions currently without drug testing, 88% indicated that they plan to implement a prog within a year and 98% of institutions without drug educ prog plan to start one shortly. The major reasons why institutions have developed prog (or plan to), are due to beliefs that drug abuse has become widespread and is a serious thread to the lives of the athletes (66%). Regarding institutions with no prog established, the main (28%) explanation given was a believed lack of available financial resources ("Other" explanations were given by 31%). The major source of funding (87%) was found to be from the athletic budget. The univ budget (Chancellor's budget) allocated funds for 11%. [Fed funding played a partial role for a few of the respondents (2%).] It was reported by 81 (88%) of the schools that some form of drug prog existed. Winning traditions were reported by 42.8% of this number. In addition, 50%

were the larger institutions (20,000$^+$ student population). 2 Legal aspects of main concern were indicated by 68% of the institutions responding. Due process was the major concern for 27% of the respondents and the invasion of privacy was the prime response at 41%. It was also indicated that 52% of the respondents would be conducting drug testing on-site at the univ, using institutional personnel as staff. The student population having availability to the prog is primarily the athletes. Only 14% of the institutions test only specified athletes in the prog. In the drug educ prog, only 36% of the institutions make the prog available to the entire student population. In conclusion, it is indicated by the results obtained, that the athletic admin are cognizant of drug abuse among athletes and are taking steps to deal with and control the problem effectively. As early as 1983, some prog were implemented in an attempt to prevent abuse. With the new NCAA regulation coming into reality during the course of this study, which makes drug testing prog a requirement for member institutions, national recognition of the seriousness and the need for control has become mandatory.

290. GEORGIADIS, N.S. The development of an instrument to gauge the level of exhibited aggression of NCAA Division I men's basketball players. M.Sc. in Physical Education, 1988

The purpose of this study was the construction and validation of a reliable instrument to gauge the level of exhibited aggression by NCAA Division I Basketball players. A checklist was developed enabling trained observers to identify and record exhibited types of aggressive behaviors. The instrument was used to document 2 types of aggressive behaviors: 1) PHysical aggression against opponents, determined by the amount and type of body contact exhibited, and 2) Behaviors accompanying completed offensive or defensive basketball plays, which may or may not involve body contact but are sig to the game, demand the employment of aggressive characteristics, and indicate the "productivity" of the physically aggressive behavior. The study was organized around the following 4 factors: 1) instrument construction; 2) admin; 3) assessment of validity; and 4) reliability assessment. The instrument construction phase dealt with the construction of the Georgiadis Basketball Aggression Inventory (GBAI). The GBAI was devised by incorporating contributions from: a) existing theoretical frameworks, and b) reviews of related instruments. The admin phase was composed of 4 steps: 1) dev of the GBAI checklist; 2) selection of Ss who were the starting 5 players at the Univ of IL at Chicago Men's Varsity Basketball Team; 3) the procedures for admin in which 8 trained observers, trained by the investigator, tested the instrument in 4 games; and 4) the data anal in which a formula adopted by Worrell and Harris (1986) was used to compute the final aggression scores. Construct validity of the instrument was demonstrated by predicting scores under varying circumstances. Aggressive scores were predicated. They were higher when the observed player was playing defense compared to the guards. Content-face validity of the instrument was obtained by having 4 sports psychologists rate, on a Likert-like scale, the body contact category of the GBAI. An ave score of 4.15 on a 5.0 scale was obtained for the 29 out of 30 questions on the validation form. 5 head basketball coaches rated the basketball plays category of the GBAI on a Likert-like scale. An average score of 4.80 on a 5.0 scale was obtained for all the questions on the coaches validation form. Spearman's Rank-Order r was used to calculate the objectivity-internal consistency of the GBAI. A .97 coefficient was obtained giving statistical sig at the .01 level. Test-retest reliability was established by having 3 observers rate aggressive behaviors captured on video tape over time.

291. KOZUBOWSKI, J.M. Insurance plans, coverage and costs for intercollegiate programs in Illinois. M.S. in Physical Education, 1987.

the purpose of this study was to determine the nature of existing intercoll athletic insurance policies of all NCAA recognized coll and univ in IL. This study has attempted to determine the following: 1) Current provisions and coverages available and used by coll and univ in IL, 2) Responsibility for payment of the policy, 3) Factors which influence the type, price and amount of coverage that a particular institution employs, 4) Whether or not there has been difficulty keeping or getting insurance to adequately cover the athletes and the school, and 5) The ideal insurance plan which can possibly become adopted universally. d The respondent population in this study consisted of all ADs (or their designees, who oversaw insurance coverage for their intercoll activities during the acd yr 1986-87, for NCAA recognized coll and univ in IL (N=33). The total population of Division I, II, and III, public and private, coll and univ was represented. The respondents were stratified into 3 gps consisting: Division I public (n=6) and private (n=4), Division II public (n=2) and private (n=3), and Division III, public (n=0) and private (n=18). This study utilized a descriptive design employing a questionnaire which was tested to be valid (3.93/Likert Scale) and reliable (.95%). The total population of ADs (or their designees) were surveyed (N=33), of which 22 responded (66% returned response rate). According to the returned questionnaires, the results indicated that the majority (96%) of the schools offer all or part of an insurance plan for their student athletes. Of the schools, the athletic dept pays 100% in 45% of the instances, while 43% supplement above the policy of the parent or guardian. Public Division I schools (70%) pay 100% of their student athletic insurance, offering general health insurance (30%), catastrophic insurance (70%), supplemental insurance (30%), and other (travel) types of insurance (10%). It was indicated that NCAA recognized coll and univ in IL currently provide the following types of insurance: general health (30% Division I, 50% Division II, and 25% Division III), catastrophic (70% Division I, 50% Division II, and 100% Division III), accident (90% Division I, 100% Division II, and 88% Division III), liability (70% Division I, 33% Division II, and 38% Division III), or other (10% Division I, 13% Division III). Factors which influenced the type, price and amount of coverage which a particular institution employed has been found to include: the no. of sports offered (which increased the policy cost at 82% of the responding institutions), type of sports offered (high risk sports resulted in a higher premium for 80% Division I, 25% Division II, and 62% Division III schools) and the no. of athletes participating (increased policy cost at 70% Division I, 75% Division II and 50% Division III institutions). The majority of the respondent population (86%) indicated that they have experienced an insurance policy increase over the last year (1985-86). It was indicated that there has been an increase from between 0-50% at a little over half and 51-100% at 23% of the schools in the last year. Alternative insurance policies are being investigated by 59% of those responding. The alternatives included: adoption of a self-insurance prog (25% Division II, 25% Division III), gp plans (30% Division I, 25% Division II, and 13% Division III), or influencing legislators to cap ceilings on insurance rates (10% Division I, 13% Division III). Some institutions (10% Division I, 25% Division II, and 13% Division III) were considering the adoption of a common/group plan which will aid in reducing the insurance premium cost paid to protect athletes, employees and the school. The ideal insurance plan identified by the respondent coll and univ included: 1) The Athletic Dept paying 100% (Division I 30%, Division II 50%, and Division III 38%), 2) Split between family and dept (Division 1 20%, Division II 25%, and Division III 14%), 3) Covered under general fees (Division I 20%, Division III 25%) or 4) Dept supplements parent or guardian's policy (Division I 20%, Division II and Division III 25%). In conclusion, it is indicated by the results obtained that athletic admin are well aware of the rising insurance costs and are making attempts to find alternatives and deal with the problem effectively. Aside from an attempt to get the best plan per dollar, admin are promoting the importance of risk management and taking the proper steps to reduce or min liability. Affordable insurance policies are an important reality if intercoll athletic prog are to continue, not only in IL, but nationwide.

292. LIFKA, R.J. Implementing an after-school alternative wellness activities program for at-risk Hispanic youth. M.Sc. in Physical Education, 1989.

The purpose of this study was to explore the process and product of an alternative wellness model implemented into a 15 wk, after school physical activities prog, with 20 6th, 7th, and 8th grade, socially at-risk, Hispanic F and M, ages 10-13. An existing self and social responsibility model (Hellison, 1978, 1985) was implemented with the students, enabling them to take charge of their lives by making decisions, setting goals and being responsible for their successes and failures. A qualitative case study design was used to evaluate 3 focus questions: 1) What was the impact of the intervention process on the teacher; 2) what was the impact of the intervention process on the model; and, 3) what was the impact of the model on the students. Multiple data sources were utilized to collect the data: 4 sets of field notes (written by the teacher/researcher, 2 assistants, and an observer); interviews conducted at the end of the prog with the students and two prog classroom teachers; student journals; a pre-post self-perception questionnaire; pre-post fitness testing in push-ups (regular and modified), sit-ups (bent-knee), hip flexion, and a 12 min run; and finally comments from the students' parents. The data were anal by overlapping the multiple data sources. Within the 3 focus questions certain themes emerged. The results from the data had implications for the teacher, students and the model. First, the teacher developed empathy and sensitivity toward the Hispanic culture. His philosophy and beliefs were tested and matured through the process of the study. He learned the art of the teachable moment, he learned how to use situations as learning exp, and how to let kids be kids and reflect afterward. Second, the model remained intact throughout the study. ONe adjustment, however, was made at the beginning of the study due to the students' inability to understand and act on self-responsibility within the extensive framework of choices that were presented. Finally, from the multiple data sources the students demonstrated cognitive understanding and awareness of the model's goals. It was evident that interaction among the students improved, for they showed more respect for their peers, were better able to control verbal and physical abuse, exhibited more effort and involvement in activities and goal setting, showed signs of individual and gp responsibility, developed better communication and writing skills, and improved on the battery of fitness tests. By the end of the study, it was apparent from the student journals that each individual: felt more cared for, was able to express personal feelings and thoughts, and felt better about themselves. The most important recommendation one can make for at-risk youth is to continue to implement the alternative wellness model. Due to the success that the researcher experienced with implementing the model, the following recommendations were made: 1) To extensively use the model in regular and out of school prog; 2) to use audio and video equipment to capture the thoughts, feelings, attitudes and behaviors of the students; and 3) to conduct a long term study of the students once they leave the program in 1, 3, and 5 yrs.

293. MISS, M.M. Comparison between the effects of a nine week exercise program on land or in the water on selected components of physical fitness. M.Sc. in Physical Education, 1988.

The purpose of this study was to compare 2 types of post-season training prog, land and water, and the effects each had on 6 components of fitness. In addition, pre- and post-test scores were evaluated to determine the effectiveness of the training prog on each fitness component. Both gps were pretested and post-tested on 17 variables which were divided into 6 categories: 1) body comp; 2) flexibility; 3) muscle strength; 4) muscle endurance; 5) muscle power and 6) CV endurance. The Ss included in the study were post-season intercoll athletes from the M hockey (n=12) and gymnastic (n=6) teams, and the F gymnastic (n=5), volleyball (n=1), basketball (n=1), and tennis (n=3) teams. Teams were split and Ss randomly drawn for either land or water training. The prog were 3 times per wk for 9 wk. All Ss were pretested during wk 1 and post-tested during wk 9 on the 6 components of fitness. Each 50 min exercise session consisted of warm-ups and flexibility (12 min), aerobic work (23 min), muscular strength and endurance (12 min), and a cool-down (3 min). The exercises were calisthenic in nature and conducted by this investigator. Exercises were modified to adapt to the environments, however similar muscle gps were worked. Blood samples were taken and training HR recorded 3 times during the study to estimate the training intensities. Attendance was mandatory and Ss missing more than 1 exercise session were dropped from the study. This study utilized a dual exp gp pretest, post-test design to determine sig diff between land and water training prog. The data was anal using a dependent t-test to determine sig diff between pre and post-test scores. A multi-variate t-test was used to determine if there was any sig diff between land and water training for each component. To estimate the training intensities the M and SD for the training HR and blood lactate assays were calculated. The level of sig was pre-established at the .05 level. The principal outcome of this study indicates that there was little diff between the effects of land or water training on the 67 components of fitness. This rejects the hypothesis that water would show a sig increase in training compared to land. However, data does support the hypothesis that a sig diff between pre- and post-test fitness scores would be found for both land and water. Of the 6 components tested the land results indicate flexibility, muscle endurance, and muscle strength had a sig diff between pre- and post-test scores. OF the 17 individual fitness tests, all but 4 showed a sig increase on land. The results for water training indicate that muscle power was the only fitness component of the 6 that did not show a sig diff. Individual fitness tests for water showed 11 of the 17 areas to be sig diff between pre- and post-test scores. Muscle strength was the only component to show a sig diff between land and water training with land demonstrating a greater increase. Based on the results of this study suggested research for the future includes: to add resistive devices in the water, to use non-athletes, control outside activities, a comparison study against other modes of training, rehabilitation and conditioning for injured athletes, a study of water training for the disabled, and to survey muscle soreness and incidence of injuries on land versus in the water.

294. NESBIT, S.A. Selected coaching background variables as predictors of winning percentage. M.Sc. in Physical Education, 1988.

Coaching background variables such as coaching exp, competitive playing exp, and level of educ are often factors considered by athletic admin for their hiring decisions. A problem that admin face is that they do not have adequate information on how these coaching background variables predict team winning percentage. The purpose of this study was to provide this information. A valid (4.6/ Likert) and reliable (.99/Spearman) questionnaire was developed to gather the coaching background data. This survey instrument was mailed to all IL HS who listed a F tennis team in the 1987-88 IL Coaches Directory (N=295). Stamped, self-addressed envelopes and one follow-up mailing were used to increase respondency. The final return rate was 57%. 2 statistical tests were performed to test the study's hypotheses. Pearson Product-Moment tests were applied to the data relating to an individual's total no. of yrs coaching tennis and total no. of yrs playing tennis on a competitive basis. It was hypothesized that these 2 variables would be sig predictors of dual match winning percentage for 1987 IL head coaches of F HS tennis, regardless of gender of coach. These hypotheses were not supported by the data. An ANOVA was applied to the data relating to an individual's level of educ. It was hypothesized that level of educ would not be a sig predictor of dual match winning percentage for 1987 IL head coaches of F HS tennis, regardless of gender of coach. Since no diff were found in dual match winning percentage among coaches with diff levels of educ, this hypothesis was supported. In conclusion, one aspect of hiring that may interest athletic admin is a coach's ability to produce winning teams. According to the results of this study among IL HS F tennis coaches, these background variables were not good predicators of a team's likelihood to win. Thus, HS athletic admin who are concerned about winning should not hire tennis coaches solely based upon these background variables.

295. PEARSALL, D. Triacylglycerol metabolism in rat skeletal muscle following exercise. M.Sc. in Physical Education, 1989 (W.Palmer)

This investigation was performed in order to examine the temporal relationship between triacylglycerol (TG) lipase activity and TG repletion in rat skeletal muscle in response to an acute bout of exercise. Untrained M Wistar rats (300-400g) were subjected to a 2 hr swim in barrels containing 8 animals. Immediately following the exercise, plasma free fatty acids (FFA) were 1.25 ± .06 mM in swimmers and 0.16 ± .01 mM in controls, representing an 8-fold elevation in those who swam ($p < 0.0001$). Plasma FFAs of swimmers were still elevated 50% ($p < 0.05$) at 8 hr, but returned to baseline by 24 hr and remained the same at 48 hr after the exercise. Triglyceride content of the slow-twitch red (STR) soleus muscle was reduced 40%, with a concomitant 36% increase in TG lipase activity immediately following the exercise. 24 hr after the swim, STR muscle TG content was slightly higher in swimmers (26%) than in control animals. At the same time, STR lipolytic enzyme activity was 84% higher in the swimmers versus the controls. Triglyceride content of fast-twitch red (FTR) vastus muscle was depressed 45% upon completion of the exercise. TG lipase activity was elevated 26% at this time, and continued to rise in the first 24 hr of recovery, so that enzyme activity of FTR muscle in swimmers was almost double that of the controls at 24 hr. This peak enzyme activity was accompanied by persisting low levels of TG in FTR muscle of exercised animals. Muscle TG concentrations and TG lipase activities had returned to control levels in both muscle fiber types 48 hr following the swim. Glycogen content was reduced by 65% in STR muscle (from 4.61 ± .19 to 1.62 ± .24 mg/g) and 61% in FTR muscle (from 6.22 ± .26 to 2.41 ± .31 mg/g) of exercised versus control animals immediately following exercise (0 hr) ($p < 0.0001$). Glycogen levels had returned to control values by 4 hr in STR and 8 hr in FTR fiber types of swimmers, with no subsequent changes for the duration of the study. These data indicate that an acute bout of exercise has a profound effect on STR and FTR muscle lipid metabolism for more than 24 hr after the exertion. In addition, these data demonstrate that TG is being synthesized in the muscle with concomitant elevations in TG lipase activity, suggesting that muscle TG is involved in rapid turn-over during recovery from exercise.

296. PODBIELSKI, B. Cardiac triacylglycerol content and lipase activity during recovery from exercise. M.Sc. in Physical Education, 1988 (W.Palmer)

This study was undertaken to determine the temporal relationship between TG deposition and TG lipase activity in hearts of F rats following exercise. F Wistar rats (200-275 g) swam for 2 hr in buckets containing 8 animals. Immediately following the exercise, plasma FFA had increased from a resting value of 0.49 ± 0.04 mM to 0.84 ± 0.04 mM. Heart TG fell from the control concentration of 1.61 ± 0.14 to 0.41 ± 0.04 μmol/g. Cardiac glycogen was reduced 49% from the resting level. TG lipase activity was increased 39% above control activity at a point when TG concentration was sig reduced. 1 hr following the end of the exercise, lipolytic activity was 28% above the control value. This activity returned to baseline by 4 hr after the work bout. In addition, TG concentrations were also back to the control levels. However, plasma FFA were still elevated 60% and did not return to resting levels until 8 hr following the swim. Cardiac glycogen returned to control concentrations by 8 hr following the exercise. These data indicate that in F rat hearts, TG is being synthesized while TG lipase activity is elevated above control levels. This suggests that the rate of TG synthesis is exceeding the rate of hydrolysis. Since plasma FFA concentrations are elevated during periods of rapid TG synthesis, substrate availability, namely plasma FFA, may play a key role in regulating the size of the intracellular TG pool.

297. RUFF, S.M. Perceived effects of teaching and coaching on role performance under selected conditions. M.Sc. in Physical Education, 1989 (M.Kneer)

The purpose of this study was to further investigate the perceived influence of assuming both teaching and coaching roles on effective performance of secondary M and F physical educators. Teacher-coaches opinions were studied to determine their preference for one or both roles under conditions which altered the task load and/or adequately rewarded the overload. In addition, the study investigated if the problems relative to teacher-coach role strain could be hypothetically alleviated with ideal working conditions. An investigation of opinion diff by gender and exp was also planned. 13 hypotheses were formulated based upon a review of the lit pertaining to teacher-coaches. A questionnaire was developed to test the hypotheses. The questionnaire was determined to be valid and reliable. Questionnaires were sent to 120 secondary PE teacher-coaches in IL Cook County public schools, 60 of which were M and 60 were F. A 63% response was obtained after 2 mailings to include 40 F and 35 M. The data were computed and anal using frequency distributions, percentages, and chi square. Data collected indicated that teacher-coaches who responded feel that present combined role conditions foster several problems. A majority (55%) of the respondents indicated that they do not have adequate time to prepare and perform both teaching and coaching to the best of their ability. A majority (71%) of the teacher-coach respondents indicated some or great mental preoccupation with coaching duties while teaching their PE classes and 53% indicated that this has some or great neg effect on their teaching. Role preference data indicated that 85% of the 75 teacher-coach respondents would prefer to teach and coach as opposed to only teach or only coach given they had a lighter class load during their coaching season. Data also indicates that PE teacher-coaches feel that a lighter class load during the coaching season might foster pos improvements in both teaching and coaching quality. 96% percent of the respondents indicated that they would have more than adequate time to prepare and perform both teaching and coaching to the best of their ability if their teaching load would be decreased by 1 or 2 classes during the coaching season. Only 28% would continue to be preoccupied with coaching duties while teaching their PE classes. 95% of the teacher-coaches felt they would be more than or highly satisfied with their coaching quality with a lighter teaching load during their coaching season.

298. SCHMIDT, J.H. The effects of mental preparation versus a combination of mental preparation and mental practice on learning the golf chip shot. M.Sc. in Physical Education, 1988 (C.Walter)

The purpose of this study was to compare the effects of physical practice, mental preparation prior to the golf chip shot and a combination of mental practice and mental preparation. The investigation sought to determine which of the 3 types of practice was the most effective in learning the golf chip shot. 62 Ss were taken from intact beginning golf classes at 2 univ in the area surrounding Chicago, IL. Ss in each class were randomly placed in 1 of 3 gps: 1) physical practice (control), 2) physical practice and mental preparation, and 3) physical practice, mental preparation, and mental practice. The classes met twice a wk for a min of 50 min of physical practice. Basic techniques of the golf swing were instructed and practiced. AFter a period of 4 wk the Ss were pretested on the chip shot and on their vividness of imaging. The mental practice and mental preparation gps then received imagery training. The focus of the imagery training was specifically aimed towards the pos outcome of the ball going in the hole, with the mental practice gp also imaging the swing itself. The Ss continued in regular class instruction, as well as the practice of the preparation and practice strategies, for the next 5 wk. Post-tests were then admin for the chip shot and vividness. A 3(gps) X 2(repeated meas) ANOVA indicated that all gps improved sig in chip shot ability. The lack of an interaction between the gps and repeated meas factors indicated that all gps improved equally, although the mental practice gp demonstrated a trend for greater learning. All gps also demonstrated statistically equivalent improvement in vividness. The results suggest that within the constraints imposed by the present study, imagery does not improve chip shot performance sig more than physical practice alone.

299. SENNE, T.A. Relationships among selected coaching behaviors and selected attitudes and self-esteem of girls participating in youth softball. M.Sc. in Physical Education, 1987 (C.Walter)

The purpose of this study was to determine if relationships exist among selected coaching behaviors based upon the Coaching Behavior Assessment System (CBAS), and selected attitudes and self-esteem of F participating in a youth slow-pitch softball prog. This study was also conducted to determine any attitudinal diff which might exist with respect to the gender of the player in comparing the F player attitude results of this study with the M player attitude results of Smith et al.'s (1979a) baseball study. Coaching behaviors were observed and recorded using the CBAS. Each of the consenting F coaches (N=8) was observed for 2 complete softball games; one observation was conducted at the beginning of the season and a second observation was conducted at the end of the season. During the observation, the investigator recorded all visible coaching behaviors based upon the CBAS. Consenting players (N=73) who participated a min of 50% of the playing time completed 2 questionnaires during a team session after the completion of all CBAS observations. The F players ranged from 6 to 12 years in age. Smith et al's (1979a; 1983b) 6 Question Assessment of Player Attitudes consisted of questions to determine the players' attitudes toward their sport, coach, and teammates. The Washington Self-Description Questionnaire (WSDQ) was employed to determine the players' level of self-esteem. Appropriate statistical procedures were then performed on the data. The level of sig was pre-established at the .05 level. The results of this study led to the following conclusions: (1) Attitudinal diff were found to exist between the study conducted with M in 1979 and with F in 1987. F rated the attitudes toward their coach and toward their team sig higher ($p < .05$) than the M; however, M and F both demonstrated pos attitudes toward their sport (baseball/softball) with no sig diff indicated; (2) All F players demonstrated a pos attitude toward softball. The majority of the F (92%) also demonstrated pos attitudes toward their coach; (3) Pos F attitudes toward softball could not be predicted by the rates of reinforcement and encouragement behaviors demonstrated by their coaches; (4) The F players' level of self-esteem could not be predicated by the rates of reinforcement and mistake-contingent encouragement behaviors demonstrated by their coaches.

300. SNEAD, D.S. A comparison between practice with two types of golf balls for transfer of learning to regulation golf balls. M.Sc. in Physical Education, 1988 (C.Walter)

Golf has become an increasingly popular activity which many public schools are now offering. A drawback exists in that a large amount of outdoor space is necessary if regulation golf balls are used because of the distance that they travel. Because of this, plastic golf balls have traditionally been used to teach and dev golf skills. However, since plastic balls vary greatly from regulation balls in terms of wt and "feel," the degree of transfer they may provide to the learner is in question. This study was designed to determine the effects of transfer of learning from two types of practice balls, the Mac-Col ball and plastic ball, to driving a regulation golf ball for distance and accuracy. Although these balls are the same in size, their wt, flight characteristics, travel distance, and rebound characteristics vary greatly. The plastic ball weighs less than 1/8 of an oz and the Mac-Col ball weighs 1 3/4 oz, therefore making it much closer in wt to the regulation wt of 1 1/4 oz. Due to this greater wt, the chances of injury are greater if hit by a Mac-Col ball than with the plastic ball. However, the Mac-Col ball will not ricochet off a wall and thus there is less of a chance of being struck by a Mac-Col ball than a regulation ball in an indoor setting. The flight characteristics of the Mac-Col ball, in terms of distance and trajectory, are also much more similar to that of a regulation golf ball. If transfer of learning takes place more effectively when the Mac-Col ball is used in the initial learning stages of golf skill dev then it could be used for more effective learning than practicing with a plastic ball in limited outdoor space or in indoor facilities. 2 intact classes were pretested on driving a regulation golf ball with a 5 iron. The distance the ball landed from a target was recorded for each trial. Ss then participated in 2 wk of instruction. One gp (n=14) practiced with the plastic balls while the other gp (n=18) practiced with the Mac-Col balls. Ss were then post-tested. At this time, Ss also completed a questionnaire to determine their feelings toward the similarity between their respective practice ball and the regulation ball. It was hypothesized that due to the similarity in wt to a regulation ball, 1) the "feel" of the Mac-Col ball would be closer to the regulation ball and thus, 2) this would result in a greater degree of pos transfer than the plastic ball. The subjective perceptual data indicated that both gps felt that the flight characteristics of their practice ball were sig diff from a regulation ball. Additionally, only the plastic ball gp thought that the "feel" of their practice ball was sig diff from that of the regulation ball; thus, Hypothesis 1 was supported. An overall comparison between the 2 gps indicated a trend for the plastic ball gp to feel that their practice ball was more diff than a regulation ball in terms of force at contact, and flight characteristics than did the Mac-Col group, although these diff failed to reach sig. The performance data showed both gps improved from pre to post-test. However, this improvement was equivalent for both gps. The second hypothesis was therefore rejected.

301. SPIETZ, B.J. The effect of anxiety on the motor performance of mentally retarded and non-retarded adolescents. M.Sc. in Physical Education, 1988.

This study was designed to determine the effects of situational (A-state) anxiety responses upon motor performance. 2 gps of 15 chronological age-matched MR and non-retarded adolescent M and F performing without a time constraint (control gp), and 15 chronological age-matched MR and non-retarded adolescent M and F performing under a 1 min time constraint (exp gp) were compared for accuracy on 15-trial basketball free-throws. HR was used as a meas of the level of anxiety. A baseline pulse was taken prior to the free-throw session. 3 pre-and post-treatment pulse rates were taken as well as a pulse rate for each of the 15 free throw shots.

These rates were compared to determine if diff between trial performance and anxiety levels existed. The accuracy scores taken from the free-throw session and pulse rates were examined to determine the effects of anxiety on motor performance and any diff between MR and non-retarded adolescents. Results of a 2 sample t-test indicated no sig diff between gps on the baseline and post treatment pulse rates. Diff existed between the exp gps (time-constrained non-retarded and MR) on the pre-treatment pulse rate with the MR having the higher rate. The control gps (non-retarded and MR untimed) showed sig diff in accuracy scores with the non-retarded having the higher score. Diff existed between the time-constrained and untimed non-retarded Ss on the treatment pulse rate with the untimed gp reporting lower pulse rates. An r matrix performed on each gp indicated relationships between variables within gps but none that caused diff between gps.

302. TRUESDALE, W.T. Effects of verbal reinforcement on strength training for beginning college weight training students. M.Sc. in Physical Education, 1989.

The value of wt training for increasing performance in all sports has become an established fact (Tuten and Moore, 1985). As more people have begun to appreciate the value of fitness, it has become necessary to carefully examine the best method of training for strength (Wescott, 1982). Many people believe that the presence of a verbal partner enhances their performance (Columbu, 1985). It was the purpose of this study to determine if verbal reinforcement resulted in a sig greater increase in strength than no verbal reinforcement in beginning (novice) wt trainers, as meas on the Universal bench press at the end of a 10 wk training period. The Ss of this study were 3 intact gps of coll-aged M and F, aged 18 to 25 (n=38). These students registered for a regularly scheduled 10 wk PE beginning wt training class. Each gp was arbitrarily assigned to 1 of 3 interventions: control (n=12), no reinforcement (n=12), or verbal reinforcement (n=14). The data consisted of a meas during a pre-test and post-test of 1 rep max (1-RM) for absolute poundage and body mass index (BMI) scores (calculated by dividing the max poundage pressed by body wt). ANCOVA and the Duncan Multiple Range Test were used to determine the diff in training effects between the 3 gps. Dependent t-tests determined training effects within each gp. The results of this study supported the following hypotheses: 1) All gps demonstrated statistically sig increases in their strength level, regardless of the intervention. 2) The Ss in the verbal reinforcement gp demonstrated the greatest increases in their strength level as compared to the no reinforcement and the control gp. 3) All Ss demonstrated sig increases in BMI, regardless of intervention. The findings did not support the hypothesis that all M Ss would demonstrate greater increases on their 1 RM bench press or BMI than the F Ss, regardless of the intervention. Therefore, it can be assumed from the results of this study that verbal reinforcement from a partner can have a pos effect on an athletic strength performance for both genders.

UNIVERSITY OF ILLINOIS (J. MEISNER)
URBANA-CHAMPAIGN, ILLINOIS

303. DEE, L.A. Effects of various loads and speeds on the mechanical energy of climbing and climbing mechanics. 1989

Climbing, one of the most common body mvmt, has not been researched on a highly-constrained apparatus, such as a climbing exercise device with synchronously moving hand grip and foot pedal on each side. The purpose of the present study was to investigate the effects of various loads and speeds on the kinematics and mechanical energy of climbing during performance on a climbing exercise device. 36 Ss (18 M and 18 F) participated in the study and were deemed to be in good physical condition and free from diseases based on the findings of the medical history questionnaire. Body meas were taken and joint markings were made for the anal of the kinematic and mechanical energy data. All Ss performed the climbing movement on a climbing exercise device under 9 randomly assigned load and speed conditions, and their performance was videotaped and filmed during the final 30-sec and 2-sec periods, respectively, under each assigned condition. The kinematic parameters and mechanical energy data were anal by taking linear and angular meas from the video screen and making mechanical energy computations after obtaining the joint coordinates for the lower limb from the film, respectively. Descriptive statistics, r, and regression were performed on the data. An increase in the speed levels had a sig effect on the following kinematic parameters: step length, cycle frequency, climbing distance, cycle time, angular velocity at the elbow, hip, and knee, and lateral mvmt of the head and trunk in the M and F gps. The positions of the head and trunk and the horizontal distance between the sacrum and ankle markers in the sagittal plane and mechanical energy values were affected by an increase in loads and speeds. There were numerous r among the kinematic parameters; however, linear relationships between load and/or speed and the kinematic parameters were few. The data from the present study may not be applicable to diff populations (older, handicapped, and unhealthy persons) and to performance on a less-constrained object, such as a tree, due to the potential diff in the outcome of the 2 above aspects.

304. KAISER, C.L. The influence of the head on the integration of standing arm flexion. 1989

This study investigated the influence of head position on stance during a voluntary arm mvmt using a force platform. Stance was meas by taking the ratio of integrated torque in units of N•m•s upward over downward torque generated during the task. This was called the ratio of anticipatory torque over volitional torque. Hip, head, and arm EMG was recorded. 12 normal Ss performed 60 trials of arm flexion under 3 head conditions, head-neutral, head-flexed, head-extended, and at 2 speed constraints, self-paced and ballistic. Tone to tone stimulus-response times were recorded in msec. A univariate and multi-variate repeated meas anal was used to determine sig of the torque ratios and response times in the 6 conditions. A linear r between the torque ratio and response time was -0.693. The m torque ratio for self-paced trials was 1.29, for ballistic trials the m torque ratio was 1.64 (p= .06). When compared for head-neutral or head-extended positions, ballistic torque ratios were sig greater than self-paced. M response time for head-extended was 1008 msec, a sig faster response time than head-neutral (1097 msec) or head-flexed (1089 msec). In all trials hamstrings were activated before deltoid, trapezius, and sternocleidomastoid. In ballistic trials, a second burst of EMG in the hamstrings occurred simultaneously with the arm and neck muscles. There was also coactivation of neck flexor and extensor muscles. These findings support the idea that during a simple motor task, integrative motor control strategies are utilized.

305. LIU, Y. Typology and social control: Sports organizations in the People's Republic of China. 1989

The purpose of this study was to describe and anal the present sports organizations in the People's Republic of China in terms of typologoy and social control. In light of "Verstehen", the study method is based on the understanding of meanings attached to the Chinese sports organizations. 2 major types of sports organizations are classified: sports for elite and sports for all. The dominant sport body in China has been the State Physical Culture and Sports Commission, which is state-supported sport and ideologically oriented formal organizations. It appears that the formal model of sports organization is transforming from the conventional state-owned to the collectively or private owned sports structure. All of the sports organizations in China are affiliated, directly or indirectly, with the central government. 3 forms of social control are applied to the Chinese sports context: physical, material, and symbolic control. Hegemony theory is a legitimate area of further social control study.

306. TOO, D. The effect of body position, configuration, and orientation on cycling performance. Ph.D. in Kinesiology, 1988, 203 p. (L.G. Carlton)

In Exp 1, 16 M Ss (21-35 yr of age) were tested in each of 5 diff body positions (0, 25, 50, 75, and 100 deg) as defined by the angle formed between the seat tube and a vertical line. The seat backrest was kept perpendicular to the ground. It was determined from repeated meas MANOVAs, Dunnett's multiple comparison tests and trend anal that: (1) for total work output and max aerobic energy expenditure, performance in the 75° seat tube angle position (76.8° mean hip angle configuration) was sig greater ($p < .01$) than in all other positions, except for the 50° seat tube angle; and (2) a quadratic function best describe the trend in performance variables with changes in body position and configuration. In Exp 2, 10 M Ss (24-35 yr of age) were tested in each of 3 body orientations (60,90, and 120 deg) as defined by the angle formed between the seat backrest and a horizontal line parallel to the ground. The body position selected had a seat tube angle of 75°. It was determined that there were no sig diff or apparent trends in max aerobic energy expenditure and total workout with changes in body orientation.

UNIVERSITY OF KANSAS **(M.Mawson)**
LAWRENCE, KANSAS

307. AIKEN, J. L. Directory of therapeutic recreation internship sites in Kansas and the greater Kansas City, Missouri area. M.Sc. in Education, 1988 (J. Fisher)

The purpose of this study was to identify and describe KS and Kansas City, MO area agencies employing Certified Therapeutic Rec Specialists (CTRS) and agencies providing therapy internship prog. 106 S agencies were identified and sent an inventory in Jan, 1988. 72 agencies responded to 2 mailings with 40 agencies employing rec therapists and 29 agencies having rec therapy internship prog. 21 of the 29 internship agencies employed CTRS. These 21 agencies with CTRS meet National Council for Therapeutic Rec Certification standards. Other major findings showed 92% of the agencies were accredited; 49% of the agencies' primary funding was from private sources; and 80% of the 40 agencies employing rec therapists were located in Kansas City, Topeka, or Wichita. The bed type most common to S agencies was psychiatric with 55% of the agencies having this patient type. The 2 most common rec therapy facilities were outdoor open areas (85%) and a games room (78%). 24 (71%) of the agencies indicated they employed CTRS. A 16 wk internship was indicated by 45% of the agencies as their preferred length of field work. Jan (68%) and Sept (64%) were the preferred starting dates for internships. 70% of the agencies did not have internship application deadlines. 52% of the agencies said they would accept only 1 intern at a time. Room and board were provided for the intern by 17% of the agencies;7% of the Ss said they provided only board. 4% of agencies provided a stipend for rec therapy interns. 64% of the agencies did not provide liability insurance for interns. The findings provided an initial overview of the state of rec therapy internships in KS and the Kansas City, MO area. Recommendations included the need of a published internship directory to be accessible to all area univ students who study therapeutic rec and for a yearly update of this directory.

308. BEELER, B. B. Usage of the Cramer Fit-N-Dex for Physical Education teachers and football coaches at the High School level: A market survey. M.Sc. in Education, 1988. (M. Mawson)

This study was designed to determine the diff between users and potential users in their perceived utilization of the Cramer Fit-N-Dex for PE classes and football prog at the HS level. It was a sub purpose of the study to determine if there were identifiable factors contributing to the use or disuse of this software package. Finally, perceptions of users of the Cramer Fit-N-Dex were descriptively anal. The PE and Football Software Awareness Questionnaire was answered by 128 teachers and coaches. Ss included 52 users and 76 potential users of the Fit-N-Dex from HS across the country. 44 computer utilization concepts and 11 "user only" perception questions were presented in the survey. From these 44 questions, 6 clusters of items made up the factor anal. Participants indicated their answers to this survey on a 5 point Likert scale ranging from "strongly disagree" scores of 1.0 to "strongly agree" scores of 5.0 The responses of the questionnaire were statistically anal using histograms, a simple t-test, factor anal using a t-test, and frequency distributions. A .05 level of sig was used throughout the study. The t-tests revealed sig diff M in only 10 of the 44 questions posted. Users and potential users diff on the importance of software and how influential the results would be in their teaching/

coaching decisions. Both gps "agreed" in such areas as computer courses taken in coll, software awareness, and funding. They were "undecided" as to which evaluations were the most useful for the software. The factor anal revealed a sig diff in the awareness cluster in that users were more cognizant of Cramer Fit-N-Dex software. Both gps "agreed" funding was a major problem and they were "undecided" in the clusters that represented time demands, admin support, background, and access. The user fb section showed that users "agreed" that the prog was well defined, clear, logical, user friendly, motivational, and effective to use. It may be concluded that the actual utilization of computers in PE and football produced similar results by users and potential users. However, the perceived responses from the "user only" section showed a much higher level of satisfaction among the uses of the Cramer Fit-N-Dex than the utilization section had indicated.

309. BOUCHER, D. A. Effects of intensive nutritional education on nutrition knowledge and school lunch choices of third grade students at Santa Fe Elementary School. M.Sc. in Education, 1989. (J. Cox)

62 third grade students at Santa Fe ELE School, in Hickman Mills, MO, were participants of a study which was used to determine if there was a relationship between nutritional educ and school lunch food choice. A Nutritional Knowledge Test for 3rd grade was given as a pre and post test. 2 class rooms with a total of 29 students were the exp gp and 2 class rooms with a total of 33 students were the control gp. A baseline of school lunch choices was collected for 5 days on all participants. Following the baseline collection of data, which was anal using a modification of the DINE computer prog, a 12 unit nutrition course was taught to the exp gp. After instruction, food choices were again recorded and anal for all third grade participants.

Data were anal using the following methods: the pre test scores of each gp were compared to the post test scores of each gp by means of a t-test to determine change in knowledge. The M baseline DINE scores of each gp were compared to the M post course DINE scores to show change in food choice. r were calculated between pre test DINE M and pre test scores and post test DINE M and post test scores. It was found that knowledge increase and food choice change were sig at p=.05 for the exp gp, but not for the control gp. There were low relationships between all comparisons of test scores and DINE M. The conclusions reached, as a result of this study, were: Nutritional knowledge increased as a result of instruction and the increased knowledge influenced better choices of food from the school lunch prog.

310. CLARK, J. K. Flexibility and gait changes in the elderly as a result of participation in a prescribed exercise program. M.Sc. in Education, 1988. (M. Mawson)

The purpose of this study was to determine the effects of an aerobic exercise prog on joint flexibility and gait in an elderly population. 11 F Ss (M age = 76.1) volunteered in an 8 wk, once a wk, aerobic exercise class, while 6 control Ss (M age = 69.3) elected not to exercise during the same time period. A pre- and post-test for 8 selected joint ROM meas were taken as well as a mobility skills test meas 14 mobility and balance tasks. A dependent 2-tailed t-test anal sig diff in pre- and post-test scores for flexibility and mobility, as well as the change in the M scores between the control and exp gps. A simple Pearson Product r noted relationships between flexibility, mobility, and attendance. Ave attendance was 4.18 wk, with the greatest r being between attendance and hip flexion (0.56). The exercise gp did not make sig ($p < 0.05$) gains in flexibility except for knee extension, and hamstring and low back flexibility.

However, the exercise gp did sig ($p < 0.05$) improve their mobility skills.

311. DORZWEILER, J. C. The rationale for initiating corporate recreation fitness programs. M.Sc. in Education, 1988. (A. Heinze)

A questionnaire was sent to 100 corporate professional members of the Assoc for Fit in Business to determine the rationale for initiating a corporate rec/fit prog, including initial prog content, staff type and qualifications, prog dev, who admin and supports the prog, participation rates, budget size, prog justification, and facilities available. Based on the 71 usable returns in 2 mailings of the questionnaire the following conclusions were made. The rationale for initiating a prog was to increase morale and to have better overall employee health. The most popular prog that was included initially was exercise and physical fit more than any other prog. Prog that were discontinued could easily be reinstituted if requested. Prog content was influenced mostly by employee interest followed by top management. The largest initiation of new prog was between the yr 1983-1985. The majority of prog had an on-site physical fit center and/or gymnasium when they were initiated. The participation rate was generally 21-40%. The main focus of the prog was on all workers, however most workers affected were white collar. Corporations mainly used paid in house staff to admin their program, however, in several areas outside prog were used. The staffing for in house was generally 0-5 employees who used an independent budget. The category of \$100,001-\$500,000 was the most frequently chosen budget size. This budget category included salaries, equipment, overhead, payout for outside services, but did not include capital outlay. Top management was believed to be responsible for initiating and establishing the prog. However, almost half of those surveyed believed that employee interest was very important in the initial stages of the prog.

Proving that the prog saved money was rated as not necessary by over half who responded to the questionnaire. Current admin support hovered between fairly high to high for the prog. In future prog, the most popular answer was to have more comprehensive wellness prog. Most of the respondents answered that they had their master's degree and the most popular field of study was in exercise physiology.

312. FINKEMEIER, R. H. The effects of two types of overload training on upper body strength development in females. M.Sc. in Physical Education, 1989. (C. Zebas)

The primary purpose of this study was to compare the strength changes in F, occurring in the shoulder extensors and flexors as well as the elbow extensors and flexors, following the standardized training regimen, using selected upper body strength tests. The secondary purpose of this study was to determine if either the constant or variable resistance training device was more effective at increasing upper body strength. The Ss followed two nearly identical training regimens and mvmt patterns, one, on a constant resistance Mini Gym Pullup Trainer, and the other on a variable resistance Professional Gym Lat Pulldown apparatus. 28 Ss, all F, were pre and post tested for upper body strength through the use of a pullup test (forearm-pronated hand position), and four muscle-group-specific tests on the Cybex II Isokinetic device. Statistical anal was performed using pre to post test within-group t-tests, a 2 way ANCOVA, and a 2-way ANOVA. Sig was set at the p<.05 level. The results of this study indicated that both constant and variable resistance training resulted in statistically sig strength gains for shoulder and elbow extension, when comparing within-group pre to post test scores. However, when compared to the control gp, the Constant and Variable Resistance trained gps proved to increase strength sig on only one parameter, pullups. Constant resistance training also proved to show sig strength improvement in the shoulder extensors. Finally, there was no sig diff found between the Constant and Variable resistance trained gps, on any of the parameters tested. It was concluded that: 1) Constant and variable resistance training only produced sig strength increases in the muscles used, in a collective manner, to perform pullups. Constant resistance training also proved to sig enhance the strength of the shoulder extensors. 2) There was no sig diff found between constant and variable resistance training for the strengthening of the muscles involved in performing pullups, shoulder extension or flexion, or elbow extension or flexion.

313. FLYNN, T. S. A comparison of NCAA Division I women's volleyball programs based on the coach's relative success. M.Sc. in Education, 1988. (M. Mawson)

A comparative study of 165 NCAA Division I women's volleyball prog relative to the coach's career win-loss percentage was conducted to compare coach's qualifications and prog components between highly successful, moderately successful, and marginally successful Division I women's volleyball prog and to determine diff in the admin perspective of these gps of coaches according to their success. The head coaches completed the Volleyball Prog Anal Inventory and were divided into 3 gps, according to their win-loss percentage. Gp data were descriptively compared using histograms and were statistically anal using ANOVA with an accepted .05 level of sig. Highly successful and moderately successful coaches were found to have had more exp in the profession, and succeeded the marginal gp in the admin of such critical prog components as staffing, recruiting procedures, scheduling, scouting, and in particular, in the areas of total operating budgets and budget subsidies. M budget expenditures and M no. of out-of-state scholarships were found to be sig diff between the highly successful prog and the other 2 success gps. Sig diff in the coaches' admin perspectives were found between the gp of highly successful coaches and the other 2 gps on: the no. and types of scholarships, budget allowances for financial guarantees and for team travel, recruiting nationally ranked players, scheduling with strong opponents, developing a specialized tactical system based on the players' strengths, and an emphasis on strength training during the off season.

314. GIRARD, T. L. An analysis of the acceptance of a new indoor game. M.Sc. in Education, 1988. (M. Chappell)

It was the purpose of this study to dev and refine a new indoor game played in a racquetball court with a polyurethane (foam) ball and a polyethylene (plastic) hollow bat, and to evaluate the acceptance level of the game as a specific PE activity for participants. 30 Ss ranging from ages 6-13 participated in this study. The investigator of this study obtained the sample gps through the Dept of HPER Sports Skills and Fit School held on the campus of the Univ of KS from June 6 to July 31, 1987. Following a review of the rules and regulations of play, the participants played the game. After the completion of the game, the players completed a 6 page Game Dev Players' Questionnaire (GDPQ). Responses from the 10 F and 20 M were tallied and given percentages calculated for each of the various responses to each question from the total no. of responses per question. There were a total of 28 questions in all. 5 areas of concern were considered by the investigator: 1) rules of the game; 2) equipment used in the game; 3) the field design; 4) skills of play; and 5) personal interest and evaluation of the game. The data were grouped by the no. of choices per question and given an evaluation. This study has shown that the perceived interest, understanding and knowledge of the game was viable.

315. GUNN, D. The effectiveness of an audio-visual mental rehearsal tape on the closed motor skill of dart throwing. M.Sc. in Education, 1988. (J. La Point)

The purpose of this study was to determine the effectiveness of an audio-visual mental rehearsal tape on the closed motor skill of dart throwing. A secondary purpose was to determine the effect on Ss viewing the tape by themselves or in a small gp. In the present study 40 M and F undergrad students from the Univ of KS were used in both control and exp gps. Those 2 main gps were each subdivided where Ss could be tested alone as "individuals" or into small gps called a "cluster". All Ss were given warm-up, pretest, and post-test dart throws at a bull's-eye type target in 1 of 2 classrooms converted to testing lab. Control Ss were given a distractor after pretest trials to reduce any dart throwing mental imagery. The exp Ss saw an audio-visual mental rehearsal tape demonstrating relaxation and dart throwing techniques. Anal was based on each S's, and gp's, gain or loss in score by subtracting pretest from post-test scores. Results showed the control cluster gp had the best overall improvement gain/loss group score, 42. The exp individual gp had the largest decrease in gain/loss with a score of -55. A 2 x 2 ANOVA was used to determine any statistical sig among the gps at p=.05. Results of the 2 x 2 ANOVA revealed no statistical sig between the gps. A questionnaire given to each S showed most Ss more than slightly agreed that the audio-visual tape was effective in improving their dart throwing skills. They agreed that they understood the purpose of the tape itself. Within the scope of the limitations of this study 2 conclusions were made. First, the audio-visual tape did indeed prove to have an effect. However, the outcome for those seeing it was contradictory to that desired as overall their scores decreased instead of increased. The Ss who did not see the tape, the control gp, exp an overall increase in their score. Secondly, gp participation proved to produce more positive gain/loss scores than for individuals throwing darts.

316. HALPER, C. A. Past practices and future directions of health promotion in the United States. M.Sc. in Exercise Physiology and Community Health, 1989. (M. Mawson)

The purpose of this study was to identify perceptions regarding past practices and future directions of the health promotion industry in the US. Parameters of the study included prog staff, ethical issues, role delineation and certification, nontraditional prog, prog sites, markets and marketing strategies, services, computer assistance, and corporate health improvement meas. This study was descriptive and focused on the predictive opinions of 76 prominent health and fit professionals in the US and Canada. Participants completed a 22-question Health Promotion Predictions Inventory with multiple variables. Questions were answered on either a single 5-point Likert scale to predict future practices or a double Likert scale to compare practices of the past 10 yr with those of the next 10 yr for each area under study. Responses were tallied and M were calculated for each item. A t-test was performed for all questions asking for ratings of past and future practices. M were compared to determine whether the future period showed an increase or decrease in response intensity from the past period. Conclusions indicate that in the next 10 yr dev of new markets will be much more important than in the past. Health care providers will diversify and offer prog to many nontraditional and special need gps. Markets considered to be the most important to reach in the future include F, elderly, blue collar workers, drug/alcohol abusers, and employees in small business. Consensus was that prog directors will require standardized training and certification for health promotion staff, particularly exercise physiologists, exercise/fit leaders, and health educ. In the next decade prog staff will use computers in more sophisticated ways to (1) educ participants; (2) store, anal, and summarize data; and (3) evaluate prog. Respondents predicted that employers and health promotion staff will (1) reshape employee health benefits packages to include cost-sharing and health incentives, (2) protect employee rights to confidentiality, and (3) offer voluntary versus compulsory participation in wellness prog. Respondents in this study predicted that in the future many employers will offer (1) health promotion prog, (2) smoke-free environments, (3) nutritious foods in break areas, (4) decreased environmental hazards, and (5) decreased organizational stressors.

317. HARRIS, N. L. An analysis of the rationale used to employ high school coaches in Kansas. M.Sc. in Education, 1988. (M. Mawson)

The Rationale for the Employment of Athletic Coaches questionnaire was admin to 93 principals of an equal percentage of small, medium, and large HS in KS, to determine the diff in rationale used to employ faculty or non-faculty interscholastic athletic coaches. The M importance of each of 15 rationale statements were assessed on a 5-point Likert scale, and a 1-way ANOVA was used to compare the hiring rationale of the admin from the 3 sizes of schools for both faculty and non-faculty athletic coaches. Student Newman-Kuels post hoc tests were used when warranted. There were no sig diff among the admin when using increased athletic participation, individuals possessing teaching credentials, previous coaching exp, and having a position to fill with qualified personnel not interested as rationale for hiring faculty athletic coaches; nor for using admin communication as rationale for hiring non-faculty athletic coaches; nor for using Title IX regulations, faculty rapport, communication with student/athletes, comm support, coaching courses taken, and having a major or minor in PE as rationale for hiring either faculty or non-faculty athletic coaches. Either faculty or non-faculty coaches were more likely to be hired by large schools due to comm pressure to add more sports; by medium schools regardless of major or minor PE credentials; and by all 3 school classifications because resigned teacher/coaches continued to teach. Faculty coaches were more likely to be hired by large and medium schools because admin communication was possible with the faculty coach throughout the school day; by small and large schools due to Title IX regulations, and by medium schools because of their expertise in coaching highly skilled athletes. Non-faculty coaches were more likely to be hired by large and medium schools when they possessed teaching credentials, had coaching expertise, and when athletic prog expanded.

318. HAUSTERMANNS, P. The relationship of percent body fat to specific dietary components and physical activity. M.Sc. in Education, 1989. (M. Mawson)

The purpose of this investigation was to determine the relationship of % bf to the percentages of carbohydrates, fats, and protein in the ave daily diet, ave daily caloric intake, and physical activity level of adult F. The subpurpose of this study was to determine the r between the percentages of carbohydrates, fats, and protein in the ave daily diet, ave daily caloric intake, and physical activity level of the same gp of F. For this study, the meas of % bf, the selected dietary components, and physical activity level were determined through the use of a skinfold caliper technique, a dietary anal, and a physical activity questionnaire, respectively. The data was collected on 44 F Ss, ranging from the age of 25 yr to 50 yr. The M age was 35 yr. All data were then anal using a multiple Pearson-Product r matrix followed by a Regression Anal. The following conclusions, considering the scope and limitations, were based on the findings of this investigation comparing % bf with specific dietary components and with physical activity level and comparing the intercorrelations between the specific dietary components and physical activity level: (1) There was a statistically sig relationship between a high % bf and a high fat content of the diet at the .05 level. (2) There was a statistically sig relationship between a high % bf and a high total caloric intake at the .05 level. (3) Carbohydrate and protein content of the diet and physical activity level were not statistically sig related to % bf at the .05 level. (4) There was a statistically sig inverse relationship between a low carbohydrate content of the diet and a high protein content of the diet at the .05 level. (5) There was a statistically sig inverse relationship between a low carbohydrate content of the diet and a high fat content of the diet at the .05 level. (6) There was a statistically sig inverse relationship between a high protein content of the diet and a low total caloric intake. All other r were not sig at the .05 level.

319. HORVATH, M. J. The effect of an imagery audio tape on putting a golf ball. M.Sc. in Education, 1988. (D. Cook)

The purpose of this study was to determine the effects of a 5 min imagery audio cassette tape on golfers with a handicap of 10 or less on the closed motor accuracy skill of putting a golf ball, and to establish validity for an imagery audio tape. In the present study 30 golfers, 15 being in an exp imagery gp and 15 being in a control (non-imagery) gp, played a 9 hole putting course twice. The exp gp listened to an imagery tape between trials while the control gp completed a diversion questionnaire. The imagery Ss also completed a Mental Imagery Perception Questionnaire which helped establish validity of the imagery tape prog. An anal of the study looked at the effect on both conditions over trials on the putting course. The anal also covered hole-to-hole comparisons for Ss in both gps. Finally, the anal included results of the perception questionnaire completed by the imagery Ss. From pre-test to post-test both the imagery and control gp's M scores improved, as the control gp's M went from M=19.80 to M=19.067 and the imagery gp's M from M=19.80 to M=18.467. Paired t-tests showed the improvement over trials to be sig for the imagery gp and nonsig for the control gp at the .05 level of sig. M scores of individual holes showed the control gp to improve on 5, be even on 1, and get worse on 3. The imagery gp improved on 6, while remaining even on 3. Finally, an anal of the Mental Imagery Perception Questionnaire revealed pos perceptions by the 15 imagery Ss as a whole, with higher M on 3 of the 4 statements attributed to those Ss that improved over trials. Within the scope and limitations of the study 2 conclusions were made. First, imagery can be a useful practice tool in helping golfers with a handicap of 10 or less on putting proficiency. Second, golfers with a handicap of 10 or less tend to look favorably on the possibilities of imagery and an imagery prog helping their putting.

320. HUNT-HEINLEIN, J. Description of wellness programs available to physically challenged individuals at the community college level. M.Sc. in Education, 1988. (L. Greene)

The purpose of this study was to describe wellness prog available to physically challenged individuals at 2 yr comm coll in terms of facilities, equipment, staff, and course content. This study also gathered information on wellness prog developed for the able-bodied. 38 questionnaires were mailed to

League for Innovation member institutions. The 33 item questionnaire was mailed to PE Dept chairpersons/wellness coordinators of league coll. Of the 38 questionnaires mailed, 58% (22/38) were returned. Description of the results revealed that 77% (17/22) of the League for Innovation coll offered wellness prog for their students, staff, and faculty. 76% (13/17) of the League for Innovation coll enrolled physically challenged individuals, but only 18% have specific prog dev for the physically challenged. The 3 coll that were initially built and equipped for physically challenged individuals were located in CA, TX, and OR. Although 76% of the League for Innovation coll enrolled physically challenged individuals, only 47% of the coll have one or more pieces of equipment designed for the physically challenged. The results showed that the warmer regions of the US are the popular locations for wellness prog that are specifically designed for the physically challenged. Also, it was concluded that enrollment has increased over the last couple of yr as knowledge of the importance of wellness has increased. On the ave, an increase of popularity for wellness and the physically challenged is recognized by enrollment figures tripling in the comm coll examined.

321. JONES, T. E. Whole-body composition estimated with bioelectrical impedance. M.Sc. in Education, 1988. (T. Thomas)

In principle, electrical properties and/or functions could describe the composition of the human body by treating it as an electrical circuit. The bioelectrical impedance (BI) analyzer meas the behavior of resistance (Rst) and reactance (Rct) in the humans; therefore, applications of Ohm's law with a workable geometrical description of the human body might determine body composition. 30 M and F comprised the sample and had the following characteristics: 27.8±7.3 yr, 172.9±8.6 cm, 68.17±12.13 kg, 56.86±10.94 kg lean body mass (LBM), 64.2479±11.5808 l body volume (BV), 1.0613±0.0166 kg/l body density (BD), and 16.5±7.3% bf. The following data were collected: age, gender, wt, ht, hand-to-foot distance (HFDist), and Rst and Rct each meas with 2 electrode arrangements. The criterion procedure, hydrostatic weighing meas functional residual capacity concurrent with underwater wt, was performed on each S. The results of the electricity-body composition relationships studied were: (a) Rst_{HF} had a stronger relationship to body geometry and BD ($r= 0.576$ and -0.456, respectively) than neck-to-foot Rst ($r= 0.493$ and -0.324, respectively); (b) 54% of Rst_{HF} was predicted or "controlled" by body geometry ($r= 0.516$, $p<0.05$) and BD (resistivity or Rho_2) ($r= 0.456$, $p<0.05$); (c) BD explained 65% of resistivity ($r= -0.806$, $p<0.05$); and (d) and BV accounted for 96% ($r= 0.979$, $p<0.05$) of electrical volume. These relationships were used in multiple regression anal (MRA) to predict BD, BV, and LBM. The best equation predicting BD produced an $R = 0.912$ ($p < 0.05$) and an $SEE = 0.0070$ kg/l (3.2% fat). This equation took the form of $BD = 1.21537 - (0.13721+/+Rho_2) + (1.05499\text{x}10^{-3}+/+Rct_{NF}) + (0.01791+/+\ln[sex]) - (4.34286\text{x}10^{-4}+/+HFDist)$. The best equation predicting BV produced an $R+0.999$ ($p < 0.05$) and an $SEE = 0.4614$ l (3.4% fat). The best equation predicting LBM produced an $R = 0.979$ ($p < 0.05$) and an $SEE = 2.35$ kg (3.6% fat). The anal of the electricity-body composition relationships indicated that Behnke et al.'s (1959) body radius provided a route to determining electrical volume and resistivity, and that HFDist was the ohmic length of the body. MRA indicated BD was the body composition index predicted most accurately with BI.

322. KOMATZ, P. W. An investigation of cardiac rehabilitation programs in the state of Kansas and Kansas City, Missouri. M.Sc. in Education, 1989. (W. Osness)

The purpose of this investigation was to collect information concerning the methods, protocols, and practices for selected cardiac rehabilitation (CR) components by the Outpatient and Comm Based CR prog in the State of KS and Kansas City, MO. The selected components included: Patient no., Outpatient entry date and screening, prog cost and insurance role, Outpatient telemetry protocols, staff qualifications and certifications, patient assessment practices, patient educ practices and methods, patient exit protocols, and finally, communication methods. The instrument developed for this investigation was a 5 page, 14 question, paper and pencil survey. It was distributed by mail to the prog directors at 55 targeted CR prog sites. A total of 20 Outpatient prog directors, 2 Comm Based prog directors, and 4 directors whose facilities operated both prog, responded to the investigation. The data collected were used to divide the Outpatient or Comm Based prog into 2 gps containing either large or small patient nos. The data for the large and small gps of each prog were then tallied and calculated for percent total of responses to each question. The responses for each prog gp were then compared to determine if any important diff existed between them. The specific data conclusions for each selected component are too lengthy to be discussed here, but the following statements indicate the general conclusions found for each CR prog. The data collected from the 24 Outpatient prog directors indicated that many diff existed in the methods, protocols, and practices for the selected CR components. these diff existed between prog in the same gp and between prog in both gps. The large and the small patient no. gp prog had important diff for the following components: Outpatient entry date, telemetry monitoring, staff certifications, patient assessment, patient educ, and finally, communication methods. These important diff indicated that the Outpatient CR prog investigated did not follow common methods, protocols, or practices for these selected CR components. The data collected from the 6 Comm Based prog directors indicated that many diff existed in the methods, protocols, and practices for the selected CR components. These diff existed between prog in the same gp and between prog in both gps. The large and the small patient no. gp prog had important diff for the following components: insurance role, staff certifications, patient assessment, and communication methods. These important diff indicated that the Comm Based CR prog investigated did not follow common methods, protocols, or practices for these selected components.

323. LONG, K. A. The determination of the lactate and ventilatory thresholds in the aged. Ph.D. in Education, 1988. (W. Osness)

The purpose of this study was to determine if the lactate (T_{lac}) and ventilatory (T_{vent}) thresholds were present in the aged. It was a subpurpose of this study to determine if the presence of these threshold diff between age/gender gps. It was a further subpurpose of this investigation to determine if the thresholds were accurate predictors of VO_2 max. 47 (23 F, 24 M) healthy Ss between the ages of 60 and 81 performed a max walking treadmill test. During the treadmill test, venous blood was sampled each min from an indwelling catheter in the antecubital vein. The M VO_2 max was 24.59 ± 6.9 $ml\text{-}kg^{-1}\text{-}min^{-1}$ or 1.73 ± 0.58 $l\text{-}min^{-1}$. The lactate threshold was detectable in 82% of the Ss (regardless of gender/age gps) at app 82% of VO_2 max (19.48 ± 4.41 $ml\text{-}kg^{-1}\text{-}min^{-1}$ or 1.34 ± 0.44 $l\text{-}min^{-1}$). The ventilatory threshold was determined in 87% of the volunteers at about 80% of VO_2 max (18.23 ± 4.48 $ml\text{-}kg^{-1}\text{-}min^{-1}$ or 1.26 ± 0.45 $l\text{-}min^{-1}$). The ventilatory threshold was hardest ($P < 0.05$) to detect in M of 70 or greater yr. With only one exception, at least one of the thresholds could be determined in each S. Stepwise multiple regression to estimate VO_2 max (1-min-1) yielded the following predictors: VO_2 at T_{lac} or VO_2 at T_{vent} (ml-min^{-1}), age (yr), gender (F = 2, M =1), HRP at VO_2 max (bpm). The best equation for T_{lac} and T_{vent} are respectively expressed below:

$$
\begin{aligned}
VO_2 \text{ max} = {} & 0.8125 + 0.0008\ (VO_2 \text{ at } T_{lac}) \\
& + 0.0094\ (\text{HRP at } VO_2 \text{ max}) - 0.3716\ (\text{sex}) \\
& - 0.0153\ (\text{age})
\end{aligned}
$$

$$
\begin{aligned}
VO_2 \text{ max} = {} & 3.7077 + 0.0006\ VO_2 \text{ at } T_{vent}) \\
& - 0.5726\ (\text{sex}) - 0.2665\ (\text{age})
\end{aligned}
$$

A comparison between actual versus predicted scores yielded an $r = 0.95$ (SEE 0.193 1-min^{-1}) for T_{lac} and $r = 0.87$ (SEE = 0.300 1-min^{-1}) for T_{vent}. There was a high r (0.90) between the predictive equations indicating that either equation could be used in this population. The results indicate that the lactate and ventilatory thresholds could be determined in healthy and at least occasionally active people between 60 and 81 yr of age. The detection of the lactate threshold is not dependent upon gender and/or age; but the determination of the ventilatory threshold is sig ($P \leq 0.05$) harder to evaluate in M over or equal the age of 70 as compared to the other gender/age gps. In addition, both the T_{lac} and T_{vent} equations provide accurate estimates of VO_2 max. Therefore, it appears that the thresholds could possibly be used for exercise prescription purposes in the aged.

324. McCAULEY, V. Alterations in the walking gait in persons over 60 as a result of a prescribed stretching program. M.Sc. in Education, 1988. (C. Zebas)

The purpose of this study was to determine alterations in the gait pattern of elderly Ss by comparing the kinematics in the lower extremities before, during, and after a stretching prog. The secondary purpose was to determine if the stretching and ROM prog was effective. Angular displacement, step length, and joint angles of the ankle, knee, hip, and trunk were meas on 4 exp Ss and 3 controls. Cinematography was the method used to determine these kinematic aspects. The statistics used to anal the data were systematic replication, t-test, and ANOVA. The exp Ss were filmed walking and meas for their flexibility at the ankle, knee, hip and trunk. An intervention prog followed which took place 5 days a wk for 30 min. The flexibility meas were taken and recorded each day they stretched. The investigator met with each S individually to insure the stretching and ROM prog was followed safely and correctly. One of the Ss was a stroke patient. The prog was lengthened 3 additional wk because of his physical condition. The exp Ss were filmed again at mid-test and post-test. The control Ss were filmed and meas for flexibility at the ankle, knee, hip, and trunk at pre-test and again at post-test. One of the control Ss served as a control and an exp S. This S was filmed at pre- and post-test. He then intervened with the stretching/ROM prog. This followed with a post-post-test of filming and flexibility meas. The t-test results indicated sig improvement in flexibility ($p < .05$) for all Ss in most joints. The greatest improvement was shown in the knee and hip. The ANOVA performed on the film data showed mixed results ($p < .05$) with most changes seen in the hip and the knee. The S who displayed a senile gait pattern due to a stroke showed the most improvement in both flexibility and gait alterations. It was concluded that a 30 min stretching/ROM prog performed 5 days a wk will improve flexibility/ROM. Most of this improvement was seen in the knee and hip joints. Stroke patients seemingly could improve their gait by improving flexibility in the involved joints. Those without noticeable pathological gait patterns over 60 yr of age can improve their flexibility with a prescribed stretching/ROM prog, but it may not necessarily affect the gait pattern.

325. McFARLAND, A. J. Perceptions of high school athletic administrators and coaches toward criteria used in coaching evaluations. M.Sc. in Education, 1989. (L. Mawson)

HS athletic admin (N=55), HS football coaches (N=46), and HS volleyball coaches (N=49) who responded as volunteers, from a randomly selected sample of large, medium, and small schools in KS, were asked to rate 10 criteria used for the evaluation of secondary school coaches. To determine diff between athletic admin' and coaches' perceptions of the evaluative criteria for each of the 3 school sizes, the Ss responded to the McFarland Criteria for Formal Evaluation of Coaches (MCFEC) questionnaire, on which each criterion was rated using a 5-point Likert-type scale from "always used" (5) to "never used" (1). A 3x3 ANOVA and a t-test yielded several overall sig diff at the .05 level between the M perceptions of athletic admin (N=55) and the coaches (N=95) regarding the use of the coaching evaluation criteria. The criteria rated by athletic admin as being used more often than perceived by coaches, included coaches' "conduct during a game" (p=.0005), "classroom teaching ability" (p=.01), "communication skills" (p=.03), and "ability to motivate athletes" (p=.05). Coaches perceived that "win-loss record" (p=.0005) and "relationship with evaluator" (p=.003) were used as an evaluative criterion more often then did admin. 10 1-way ANOVAs were used to determine if there were sig M diff at the .05 level between the HS athletic admin and coaches of each sport among the 3 school sizes, in their perception of the extent to which each of the 10 evaluative criteria were used. When S gps were divided into school sizes, sig diff were found among the M collected for 3 criteria in small schools, 3 criteria in medium schools, and 3 criteria in large schools. The Student Newman-Kuels post hoc test was used to identify the gp M that were sig diff beyond the .05 level. The criteria shown to be sig diff between the perceptions of athletic admin and coaches varied among the 3 school sizes. It may be concluded that there are several diff between interscholastic athletic admin and coaches in their perception of the criteria used to evaluate coaches. This implies that athletic admin should review their evaluative criteria for coaches in regard to expected outcomes, and should communicate these criteria to the coaches. School size and athletic position also were found to influence the perceived utilization of various evaluative criteria, implying that the criteria used for evaluating coaches are not universal and should be carefully identified and agreed upon between superior and subordinates in each interscholastic athletic prog.

326. McVEY, L.L. The effect of strength training the plantar flexors on improving the vertical jump. M.Sc. in Education, 1989. (C. Zebas)

The purpose of this study was to determine if adding traditional strength wt training exercises, beyond the normal interrelated strength, speed and power training prog, to specifically work the plantar flexors of athletes was productive in increasing the athletes' vertical jumping ability. The Ss, 40 intercoll swimmers of both genders, were proportionally stratified on the bases of gender and primary swimming distance and randomly assigned to the control or treatment gp. The water and wt room workout of each gp was identical except the treatment gp performed 3 sets of 15 rep of plantar flexor work at the end of each wt room workout for 12 wk. Vertical jumps were meas by use of the Sargent's vertical jump test and the Vertec jumper. All Ss were pretested, and then retested at the beginning of wk 5, 8, 13, and post-tested 3 wk after the end of the plantar flexor work. A 2 factorial repeated measures ANCOVA was run to determine if increases in the vertical jump had occurred from pre- to post-testing for either the treatment or control gp and to determine if there were diff in improvement between the 2 gps at any point in time. Sig results were followed up with a Tukey post hoc test to see where the diff occurred. The level of sig was set at .05. The ANCOVA showed the specifically trained plantar flexor gp did not have a greater increase in vertical jump after the 12 wk training prog than the control gp. While the ANCOVA did show there was sig across time, the Tukey showed that neither gp had a sig increase in vertical jump from the pretest to any other test. It was concluded that for highly trained intercoll swimmers the addition of traditional plantar flexor strength work does not increase the vertical jump and that it may be very diff to increase their vertical jump using an interrelated prog of strength training and plyometrics. It was suggested the high volume of aerobic training swimmers perform may inhibit the development of power.

327. MILANESE, J. J. Fitness program preferences of corporate fitness managers. M.Sc. in Education, 1988. (W. Osness)

The purpose of this study was to determine which corporate fit prog characteristics were preferred by corporate managers in selecting a fit prog for their employees. Specifically, corporate fit manager preferences having to do with several aspects of a corporate fit prog were requested. This included physical fit and HE classes, fit facility type and locations, user's fee and release time for work, the inclusion of music as a part of the exercise prog, and the reason for the possible implementation of a corporate fit prog. Additionally, the managers were asked to state their position with the fit facility, their level of educ, and their major area of study. The responses were obtained using the Prog Characteristic Questionnaire (PCQ), which was developed after a review of relevant lit and submitted to a panel of experts for suggestions and revisions. The PCQ was sent to 200 randomly selected members of the Fortune 500 corporations. Seventy PCQ's were returned. From the resulting data, the responses were hand tallied for each question and converted to percentages where appropriate. Upon review of the data, it was found that those corporate fit managers who responded to the survey preferred HE classes over physical fit classes. However, certain physical fit classes were physical fit classes was aerobics, although certain types of aerobics fared better than others. The most preferred HE classes were back care and relaxation. The majority of the corporate fit managers indicated a preference for an in-house fit facility as opposed to an off-site location or contractual arrangement. Also, most preferred that all employees be granted access to the facility. Most of the managers desired that there be a user's fee for selected classes. The most prevalent reason for the implementation of such a prog was improved employee health. It was found that exercise physiology and business were the most studied areas of the managers. Almost all of these managers had a coll degree, with the bachelors and the masters degrees being the most popular.

328. MILLER, J. S. An analysis of the qualifications of athletic directors among small, medium, and large high schools in Kansas. M.Sc. in Education, 1989. (L. Mawson)

The AD Qualifications Questionnaire was admin to 109 AD of an equal percentage of small, medium and large HS in KS. The study was designed to determine the qualifications among the gps of AD, and to determine diff in their perceptions of admin characteristics and skills, and their philosophy of interscholastic athletics. 22 descriptive qualifications questions provided information presented as histograms. The M importance of 50 admin characteristics and skills, and philosophy of interscholastic athletics, were assessed using a 5-point Likert scale. A 1-way ANOVA was used to compare the 3 school gps. Student Newman-Kuels post hoc tests were used when necessary. Common characteristics found in all 3 school gps of AD included being M, White, married, between 40-49 yr old, a lack of head football coaching exp, min, if any, F coaching exp, participation in both interscholastic and intercoll athletics, an educ preparation of a masters degree plus hours, certification to teach PE or history and social studies, and possession of a current admin certificate. Generally, the small school AD were less exp and qualified than the medium or large school AD. While the medium and large school AD were very similar in most cases, the large school AD were generally older, had the most exp as an athletic director, had the least exp as a head football or head M basketball coach, had the only AD with doctorate degrees, and were most likely to belong to the state and national professional assoc. The small school AD revealed sig diff as compared to the medium and large school AD in several areas. When compared to the medium and large gps, the small school AD expected to work overtime less, attended professional conferences less, were less likely to make decisions and defend them, were less likely to look forward to working with athletics on a daily basis, were less likely to have a sincere desire to be an AD and were more likely to seek parental input prior to decision-making.

329. MILLER, L. E. The effect of the use and nonuse of progressive breathing exercises on athletic performance. M.Sc. in Education, 1988. (D. Cook)

The purpose of this study was to determine if relaxation exercises, prior to performance, would have a sig effect on athletic performance among all or among the starting 5 F JV HS basketball players. Specifically, the anxiety levels and athletic performance of basketball players who practiced breathing exercises prior to 10 games were compared to the same F basketball players who practiced no relaxation prior to 10 diff games in the 1987-88 season. The data for this study were collected by admin the Competitive Short Form of the State Anxiety Inventory (CSFSAI), and recording their athletic performance as meas by turnovers, field goal shooting percentages, free throw shooting percentages, and win/loss percentages. Data were evaluated by means of 5 t-tests and 1 descriptive comparison. 3 of the 6 areas anal were sig. Those areas were team anxiety level, turnovers, and win/loss percentages. 2 areas, team free throw shooting and field goal shooting were not sig. 1 area, starting 5 players' anxiety level, was not sig; but, the t-value approached sig, meaning that there was a tendency that breathing exercises had some effect on starters. Based on these results, this study was supportive of previous studies' findings. Relaxation exercises prior to performance are a sig help in improving athletic performance.

330. MILLER, M. L. The effects of three different instructional presentations on the learning of wellness concepts in third, fourth and fifth grade academically gifted elementary school children. M.Sc. in Education, 1988. (L. Greene)

The purpose of this study was to compare the effects, if any, of 3 diff instructional presentations on the learning of selected wellness concepts in third, fourth, and fifth grade acd gifted ELE school children. The 3 presentation methods were computer prog, VCR tapes, and traditional teacher presentation techniques. Ss for the study were 110 third, fourth and fifth grade students enrolled in the St. Joseph, MO School District's prog for the acd gifted. Ss were randomly assigned, by grade level, to 1 of 3 gps, and each gp was randomly assigned a presentation method. The exp prog consisted of 15 lessons presented during a 35 min time slot 1 day a wk for 9 wk. The same concepts were presented by each of the 3 presentation methods. The VCR tapes served as the basis from which the computer prog and traditional teacher prog were made. Gp M scores were anal to determine diff among gps, based on data from the Pre and Post Sunflower Evaluation. Based on the findings of this study, the following conclusions were made: 1) The computer method and traditional teacher method of instruction were more effective presentation methods for the learning of wellness concepts as compared to the VCR method of instruction. Sig was at the .01 level. 2) There was no sig diff between the computer method and traditional teacher method of instruction. 3) A high percentage (14.2) of the diff among gps was accounted for by the treatment.

331. NIBARGER, N. The effect of win/loss, point spread, and game minutes played on sport-confidence and self-concept of women collegiate basketball players. M.Sc. in Education, 1988. (L. Mawson)

25 NCAA Division I F basketball players responded to 20 questions of the Women's Basketball Questionnaire to determine whether there was a diff between their self-efficacy (self-confidence) and self-concept scores after winning and after losing. The point spreads of the game outcomes and the no. of game min played were also assessed to determine if they were related to the self-efficacy or self-concept scores of these coll F basketball players. Results of t-tests showed that the self-efficacy/self-confidence scores were sig higher at the .05 level for F coll basketball players after winning compared to losing. No t-test diff were found

between self-concept scores after winning compared to losing. Secondly, sig and moderately low product moment r were established between the point spreads and self-efficacy scores after games won, but not after games lost. Self-efficacy scores and playing time produced a low sig r for games won, but not for games lost. No sig r were found to exist between self-concept scores and either playing time or point spreads, regardless of whether the games were won or lost.

332. ORLOFF, H. A. Standardization, reliability and validation of flexibility field testing protocols. Ph.D. in Education, 1988. (C. Zebas)

There were 2 major purposes of this study. They were: 1) to determine the day to day reliability of the sit and reach, shoulder elevation, and trunk extension flexibility field tests when specific warm-up protocols were implemented, and 2) to determine the concurrent validity of the 3 field tests versus the Leighton Flexometer and manual goniometer meas. The sub-purposes of this study intended to determine if trial no., muscle temp, or body segment dimensions or ratios affected flexibility field testing. The Ss for this study were 75 M and F volunteers, ranging in age from 19 to 54 yr. The Ss were asked to perform the 3 field tests each day until the flexibility meas stabilized. At this point 1 of 3 warm-up exercise protocols was implemented. The 3 warm-up protocols were a control, a bicycle, and a short stretch prog. The Ss continued testing on each test, for 4 days past stabilization. During these 4 days, muscle temp was taken every 30 sec of the warm-up period. On the last day of testing, anthropometric meas, flexometer readings, and manual goniometer meas were recorded. The day to day reliability for the sit and reach test was .99 for the stretch gp, .82 for the bicycle gp, and .80 for the control gp. The day to day reliability on the trunk extension for the stretch, bicycle, and control gp were .91, .84, and .84, respectively. The day to day reliability on the shoulder elevation for the 3 warm-up gps were .99, .70, .93. The stretch warm-up protocol was the preferred method. There were no sig r between temp and scores on the flexibility field tests. The no. of trials needed to ensure that a score not diff than the max score was achieved was 3 for the sit and reach, 2 for the trunk extension, and more than 3 on the shoulder elevation. The anthropometric ratios and lengths did not have high r with the scores achieved on the 3 field tests. The manual goniometer was a preferred method of meas validity on the 3 field tests.

333. PRESTON, G. R. The effects of footbagging versus static stretching on immediate changes in flexibility, range of motion, and agility when used as warm-up techniques. M.Sc. in Education, 1988. (C. Zebas)

It was the purpose of this study to compare the effects of footbagging versus static stretching on immediate changes in flexibility, ROM, and agility when used as warm-up exercises. 54 coll students, 23 M and 31 F, enrolled in PE classes at the Univ of KS, were tested 3 times over the course of a wk, using the Sit and Reach Test, the Leighton Flexometer, and the L.S.U. Agility test, waiting at least 48 hr between each testing session. Each S underwent testing on 3 different occasions: 1) after static stretching for 15 min, 2) after using the footbag as a dynamic warm-up for 15 min, and 3) after reading for 15 min. The results revealed no sig diff ($P < 0.05$) between warm-up techniques on flexibility, ROM, and agility testing. It was concluded that static stretching and using a footbag as warm-up techniques were not diff in increasing flexibility, ROM, and agility.

334. ROBERTS, K. The effects of differing levels of dietary fat intake and differing levels of exercise on the plasma cholesterol and lipids. M.Sc. in Education, 1989. (W. Osness)

This study determined the relationship of physical activity patterns and dietary patterns of fat intake to serum chol levels in healthy, adult M aged 25-53 yr. Serum chol high density lipoprotein (HDL), low density lipoprotein (LDL), and triglyceride levels were determined and correlated to the Physical Activity Questionnaire (P.A.Q.) and Diet Questionnaire (D.Q.) scores and the dietary anal variables. Correlation coefficients were employed to determine the relationship. Full model regression tested the independent contribution of P.A.Q. and D.Q. scores and the dietary anal values to serum chol level and it's subcomponents: HDL, LDL, and triglycerides. A sig inverse r between the amount of saturated fat in the diet and the HDL level was found at the 0.05 level of sig (.2953). Full model regression was employed and the percent of Calories from fat and the amount of saturated fat in the diet were found to be the best predictors of both total chol levels (.0091) and HDL levels (.0219). From the study, it was concluded that percent of Calories from fat and amount of saturated fat in the diet were predictors for the level of total chol and the HDL levels. The amount of saturated fat in the diet is inversely related to the serum HDL level. No sig relationships were found to exist at the .05 level for the LDL, HDL to LDL ratio, or triglyceride level.

335. SCHROEDER, D. R. Perceived role model influence of female high school volleyball players and nonathletes. M.Sc. in Education, 1988. (L. Mawson)

The Interscholastic Competitive Socialization Questionnaire was used to determine if diff existed in perceived role model influences of HS F volleyball players and F band members, and if there were changes in their perceptions of role model influences between childhood and adolescence. A total of 95 F volleyball players were sampled from divisions 5A and 6A at the KS State HS Volleyball Tournament. 89 F band members from the same schools at the tournament also were sampled. Responses were anal by conducting independent t-tests on role models who influenced Ss, and by performing paired t-tests on athletes' changes in role model influences from childhood to adolescence. The results of this study revealed that some volleyball players' role models were perceived to be sig more interested in sports, interested in Ss' sport involvement, and provided more encouragement than band members' role models. Both gps received little discouragement from participation in athletics. Some athletes' role models became more supportive from childhood to adolescence.

336. SHAW, E. L. A study of the current and projected qualifications of top administrative positions in the field of Parks and Recreation in selected United States organizations. M.Sc. in Education, 1988. (W. Stobart)

The US Park and Rec Admin' Questionnaire was randomly admin to 250 Park and Rec Admin in 8 regions of the US to determine the current and projected qualifications of top executive positions in the field of Parks and Rec. The study was designed to determine if, because of new trends regarding funding restraints, (1) top admin positions are becoming more business-oriented; (2) what educ requirements are now needed; and (3) what qualifications will be needed for top admin in the rec field in the future. Perceptions of the admin were meas by a 5-point Likert scale through percentages, levels of central tendency and 1-way ANOVA. 1-way ANOVAs were computed to determine the sig diff among the admin within the 8 regions for 12 of the 23 questionnaire items. It was found that admin perceptions were similar and that no 2 regions were sig diff.

337. SINEK, N. A study of directly measured oxygen uptake as related to a predicted value and field performance in prepubescent boys. M.Sc. in Education, 1989. (W. Osness)

It was the purpose of this study to establish the accuracy of the ACSM formula for adults and the AAHPERD Physical Best test for children in predicting aerobic capacity in prepubescent M by determining the relationship of each value to a directly meas peak VO_2 obtained from a max treadmill test. Peak VO_2 was meas on 42 health M ages 10 to 12 on a max treadmill test. The directly meas VO_2 was 1) compared to VO_2 value obtained from the ACSM's metabolic formula for predicting VO_2, and also 2) compared to the times obtained from a 1 mile walk/run. A sig diff was found between the directly meas and formula predicted VO_2 with a M diff of -2.34 ml/kg/min (SD = 3.24), with a validity r of .91. A sig pos r was found between the directly meas peak VO_2 and the 1 mile times of the Ss with a coefficient value of -.77. results from the study suggest that the ACSM formula for predicting VO_2 max is not applicable to this subject gp, without the expected diff taken into account. As a result of this study, it was suggested that the 1 mile walk/run is an accurate field test for assessing aerobic fit in prepubescent M.

338. SPENCER, R. L. A study to determine the differences between international and American university students relative to self-perceived health factors: Status, attitudes, behaviors, and locus of control. M.Sc. in Community and School Health Education, 1988.

The purpose of this study was to determine diff between International and American univ students relative to self-perceived health factors: status, attitudes, behaviors, and locus of control. More specifically, this study compared: demographics, current health history, health care obtained by students within the univ milieu, health locus of control, wellness attitudes, wellness behaviors, and addressed these that student health care professionals may improve health services for International students. A descriptive instrument, the "International Student Health Inventory", surveyed current health status, wellness attitudes, and wellness behaviors. Participants numbered 582: 311 International students from 5 geographical regions world-wide, and 251 American students. Results from the survey were anal using X^2 and ANOVA procedures. The .05 level of sig was used. The results indicated that 2 stress factors may influence health status and care of International and American univ students. These are: socio-cultural (external) and self-perceived (internal) stressors. American students exp more common minor stress related illnesses and ailments than Interational students. Student responses of both gps indicated they functioned more from an internal health locus of control. International M students reported the healthiest wellness attitudes with American M reporting the poorest. No diff between International and American students was observed for wellness behaviors.

339. STALNAKER, M. L. Difference in aerobic fitness of seven and eight year old children after participation in a walking or jogging program. M.Sc. in Education, 1988.
(L. Greene)

The purpose of this study was to determine the diff in aerobic fit of 7 and 8 yr old children who participated in a prescribed jogging prog as compared to 7 and 8 yr old children who participated in a prescribed walking prog. The Ss who participated in this study were enrolled in the Sports Skills and Fit School at the Univ of KS during

July, 1987. The 9 Min Walk/Run test was used to meas aerobic fitness between the exp gp (walking) and the control gp (jogging). 13 M and F participated in the jogging gp. 15 M and F composed the walking gp. The Ss in each gp participated in their respective walking and jogging gps for a period of 4 wk. All Ss received 15 min of walking or jogging, depending on the gp, 5 days per wk during this period of time. All Ss were pre and posttested. The ANCOVA was used to anal both pretest and posttest M score diff. The findings showed no sig diff (.05 level) between the gps on either pretest M scores or posttest M scores. The gps were determined to be homogeneous at the onset of the study. Although there was no sig diff on posttest M scores, the walking gp did walk and/or run a greater distance than the jogging gp as determined by the 9 Min Walk/Run test. It was concluded that jogging did not sig improve aerobic fit levels of Ss any more so than walking.

340. STERBENZ, H. D. The effect of a single performance on the self-confidence level of distance runners. M.Sc. in Education, 1988. (D. Cook)

The first purpose of this study was to determine the relationship between a single 10K performance and pre- and post-competition sport specific self-confidence levels of distance runners. The second purpose was to compare the self-confidence levels of those who did not achieve their goal. 95 Ss were each given 2 questionnaires to complete, one before and another one after a 10K competition at Health Plus in Overland Park, KS. The questionnaires meas the self-confidence levels of each distance runner at the 2 times they completed the questionnaires. The pre-competition questionnaire asked the Ss to set a goal, and then, by matching this goal to the actual time on the post-competition questionnaire, the S was assigned to one of 2 gps; gp 1= met goal and gp 2= failed to meet goal. A Pearson Product-Moment r was run between perceived performance level and confidence (both pre- and post-competition) to determine if there was a sig relationship between them. Also, the goal achievement gps were compared using a t-test to determine if a sig ($P < .05$) diff existed in the confidence scores. The results supported the hypothesis that the self-confidence level of an athlete would be higher after a performance self-perceived as a pos one than after a performance self-perceived as a neg. The results showed some diff between M and F runners; F had faster actual times with higher pre-competition self-confidence levels, and they tended to rate the course as being easier prior to the competition with these higher levels of pre-competition self-confidence. M had higher post-competition self-confidence levels when they had faster actual times, or when they achieved a pre-set goal during the competition. They also tended to rate the course as being easier after the competition with higher levels of post-competition self-confidence. The results also indicated that self-confidence levels prior to the competition did not affect whether or not a goal was achieved, but that if a goal was achieved, self-confidence levels were higher following that competition.

341. WICKHAM, S. M. Goal setting and feedback effects on the basketball performance of the high school girls' teams. M.Sc. in Education, 1989. (L. Mawson)

30 HS F varsity basketball players, from 4 diff HS, participated in either a goal setting prog, a performance fb prog, a goal setting and performance fb prog, or neither a goal setting nor a performance fb prog over a 15 wk basketball season to determine whether there was any sig changes in game statistics. Control and exp gps of 7 or 8 Ss from each team were used. Statistical records were kept on each S per game played, and included assists, blocked shots, field goal %, free throw %, re-

bounds, steals, total points, and turnovers. For both control and exp gps, a baseline meas was established, which was formulated from the statistical results of the teams' first games, and compared to the game statistics during the remainder (10 wk) of the regulation season. Results of t-tests showed that the team that set goals improved sig in assists according to game statistics. No M diff were shown with t-tests with the team that received fb. The goal setting and fb team had sig improvements in steals and turnovers while regressing sig in rebounds. A sig improvement was found in assists of the team that did not set goals nor receive fb. Conclusions were that only a few skills changed for F HS basketball players who practice goal setting, or goal setting & fb; however, fb as a sole technique did not produce any sig M changes.

342. WOODLAND, J. D. Comparing reverse and forward chaining instructional methods of underhand throwing with severely mentally retarded adolescents. M.Sc. in Education, 1989. (L. Greene)

The purpose of this study was to compare instructional methods of forward chaining to that of reverse chaining in the teaching of horseshoe throwing to severely retarded students. Gp 1 was instructed using a forward chaining method and gp 2 was instructed using a backward chaining method. Instructional sessions for both gps were held 4 days a wk for 6 wk. The M of the pre- and posttest assessments were compared to determine the diff in skill acquisition rates between the 2 gps. 10 Ss, ages 12 to 21, participated in the study. There were 5 students in the forward chaining gp and 5 students in the reverse chaining gp. Anal of data was completed by M, SD and dependent t-test. Scores were calculated for pre- and post-test scores for each instructional gp and then anal for changes. Anal of data was completed by converting pre- and post-test scores to no. value for M, SD and dependent t-tests. The findings of the study indicated that there was no sig diff at the .05 level between the 2 gps, gp 1 taught using the forward chaining method and gp 2 taught using the reverse chaining method. There was overall improvement in both gps indicated by the M scores of the pre- and post-test assessments.

343. ZIMMERMAN-LINVILLE, M. H. VO_2 max prediction by submaximal bicycle test and the twelve-minute run test in high school population. M.Sc. in Education, 1988. (W. Osness)

This study evaluated the reliability and validity of the Astrand-Rhyming bicycle ergometer and the 12-Min run protocols on young adults to predict VO_2 max compared to lab determined VO_2max. The testing was conducted at the Univ of KS. 30 M and F Ss between the ages of 14-18 yr performed a max treadmill stress test, a submax Astrand-Rhyming bicycle ergometer and a 12-Min run test. The reliability of the max test was 0.95 as determined by the Pearson product-moment r for the test-retest results of 5 Ss. The reliability of the submax bicycle ergometer predictions were 0.933 and 0.939 for the values in L/min and ml/kg min, respectively. The reliability coefficients for the 12-Min run predictions were 0.970 and 0.977 for the values in L/min and ml/kg min, respectively. The reliability of the predicted values were determined by the r between the test-retest results of 5 Ss. The M measured VO_2 max was 3.372 l/min ± 1.064 L/min and 59.75 ml/kg min ± 9.51. The M prediction using the Astrand-Rhyming bicycle was 2.804 L/min ± 0.629 L/min and 49.07 ml/kg min ± 7.81 ml/kg min. The M prediction using the 12-Min run was 3.151 L/min ± 0.720 L/min and 55.0 ml/kg min ± 8.11 ml/kg min. The validity r of the predictions made using the submax bicycle to the max test were 0.6484 (L/min) and 0.7121 (ml/kg min). The r of the predictions made using the 12-Min run to the max test were 0.6980 (L/min) and 0.7620 (ml/kg min). These values are sig at the 0.01 level. The predictions using the submax bicycle test underestimated the max values by an average of 18% with a range of 9% to 25%. The predictions using the 12-Min run underestimated the max values by an average of 7% with a range of 1% to 14%. The author concludes that the reliability level of the 2 submax tests, the Astrand-Rhyming bicycle test and the 12-Min run test, are reliable when young adults are to be tested. It was also concluded that the validity level of the prediction of bicycle tests bore a sig relationship to the VO_2 max in this gp of Ss. The 12-Min run test also bore a sig relationship to the VO_2 max in this gp of HS athletes. Even under optimal circumstances, the predictions can only be a rough estimate of the max values.

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344. ADAMS, S.L. The relationship between heart rate and oxygen uptake during aerobic dancing and jogging. M.A. in Physical Education, 1988.

This study compared the HR-VO_2 relationship during aerobic dancing to that during jogging. The acute CV responses of a gp of trained aerobic dancers were compared to those of a gp of trained joggers. 22 coll-aged F who were participants in either an aerobic dance or jogging training prog volunteered to serve as Ss. After app 7 wk of training, the HR, $\dot{V}O_2$, and RPE responses were meas during single sessions of both aerobic dancing and jogging. The aerobic dancers and the joggers exercised at the same HR and for the same duration during the testing period. This allowed for comparison of $\dot{V}O_2$, O_2 pulse, and RPE between the 2 gps. Comparisons between the aerobic dancers and the joggers were made using t-tests for diff between 2 independent

M. The absolute $\dot{V}O_2$ ($ml \cdot mn^{-1} \cdot kg^{-1}$) of the aerobic dancers was sig lower ($p < 0.05$) than that of the joggers during exercise at the same HR. This diff resulted in a sig lower ($p < 0.05$) O_2 pulse during aerobic dancing when compared to jogging. However, when expressed in terms of % $\dot{V}O_2$max there was no sig diff between the metabolic cost of aerobic dancing and jogging at identical HR. RPE were not sig diff during the 2 activities. From the results of the present investigation it appears that a similar % HRmax-% $\dot{V}O_2$max relationship exists for aerobic dancers and joggers. This indicates that when the same exercise HR is maintained by aerobic dancers and joggers, the same metabolic intensity is attained.

345. BATKIN, M.A. Effects of aerobic conditioning upon self-esteem measures. M.A. in Physical Education, 1988 (B.D. Hatfield)

This study examined the effects of aerobic conditioning upon self-esteem. 94 coll-aged (18-30 yr) M volunteered to participate in the study. 46 of the Ss trained 3 days per wk for an average of 30-40 min, in a 14 wk running prog. The remaining 48 Ss served as controls by participating in 14 wk bowling classes in which primary emphasis was placed upon skill improvement without a concern for aerobic conditioning. $\dot{V}O_2$ max of 5 of the running Ss was assessed before and after the 14 wk training period by use of a continuous treadmill test. These tests meas a 15.27% increase in $\dot{V}O_2$ max upon completion of the training prog. All Ss completed the Rosenberg Self-Esteem scale before and after treatment. Additionally, a 29-item Valued Personal Attributes scale (VPA) and a questionnaire regarding participation in other activities were admin prior to the study. The VPA data suggested that there was no motivational diff between the gps regarding the physical or psych characteristics that they would like to possess. Activity histories suggested that the training Ss had a history of engaging in aerobic activities which may have buffered the effects of training. ANOVA revealed that there was a sig increase in self-esteem scores for both gps. Importantly, there was no interaction of gps with time suggesting that an improvement in aerobic conditioning followed the running prog did not diff affect a global meas of self-esteem.

346. BOCCUZZI, S.J. The QT interval: An indicator of the adrenergic state of the myocardium. Ph.D. in Physical Education, 1988.

It is widely accepted that there is an inverse relationship between the QT interval and HR. Recent evidence however, suggests that changes in the QT interval are independent of HR. To investigate the relationship of HR corrected QT interval (QTL) to changing adrenergic states, the QTL was studied in 8 normal healthy volunteers with 3 exercise tests; one max test, one max test after a single oral (50 mg) dose of Atenolol (Tenormin) and one submax test beginning with non-exercise maneuvers, followed by two 10 min bouts of steady state exercise at 50% and 70% VO_2 max. EKG meas and serum catecholamines were meas during all exercise stages. Max exercise after Atenolol admin demonstrated both a sig attenuation of HR and a shortening of the uncorrected QT interval during exercise and recovery as compared to max exercise without Atenolol ($p < .0001$). A statistically sig diff ($p < .0001$) was found between the QTL behavior with compared to without beta blocker admin during max exercise. The changes in QTL during max exercise demonstrated a sig change consistent with increasing levels of serum catecholamines. Beta blocker admin however, abated the increase in QTL despite similar catecholamine levels. Beta blocker admin demonstrated suppression of QTL change, suggesting a direct beta adrenergic effect on the QT interval. Position change, hyperventilation and valsalva maneuver failed to produce sig changes in the QTL despite sig HR change. The lack of QTL change was consistent with the non-sig change in adrenergic state as meas in serum catecholamines. During submax exercise efforts the QTL consistently reflected the level of catecholamines at each submax exercise intensity, with no time course variation. Regression anal of serum catecholamines with the QTL showed a poor r (EPI = .4, NE = .35) suggesting a complex interplay of autonomic and receptor-mediated factors affecting the QTL relative to changes in adrenergic state as reflected in venous catecholamine samples. In summary, the behavior of the QTL during exercise may serve as an indicator of the adrenergic state of the myocardium, reflecting beta adrenergic influence on ventricular repolarization.

347. CRIM, B.W. An investigation of professional preparation components as related to teaching success. Ph.D. in Physical Education, 1988 (J.P. Wrenn)

The dev of competent teachers is one of the most important professional challenges of our educ institutions. Currently, admin are expressing the need for more training in curr dev, supervision, evaluation, and strategies to help teachers improve instruction. Valid evaluation methods which might be utilized by admin or univ supervisors to provide appropriate evidence on the components of a professional preparation prog which contribute to teaching success were generally lacking. This lack of sufficient methods for the evaluation of components from a professional preparation prog in PE, served as the motivating factor leading to the pursuit of the present study. The purpose of this investigation was to determine which components from the professional preparation prog in PE were perceived by successful teachers to most likely influence teaching success. More specifically, where in the professional preparation prog did successful teachers gain the skills and knowledges that contributed to their success? 26 of 30 city/county directors consented to identify successful secondary PE teachers within their school systems from the State of MD. Each teacher identified was mailed the PE Inventory Survey (PEIS), which was specifically dev for this investigation. After the data were collected frequency distributions were conducted to examine for diff among the components identified by successful secondary PE teachers on the PEIS. x^2 anal were conducted to further examine for diff among the components in the degree of importance assigned by these teachers, and if there were diff in where these teachers learned about each of these components. ANOVA and x^2 were also used to determine if teacher's ratings of the degree of importance differed by demographic variables. Successful teachers identified that management/control, discipline, and organization were the 3 most highly rated components contributing to teaching success. Few diff were found in the ratings of components by successful teachers based on their exp, gender, age, level of educ and type of school. For almost half of the components, student teaching and PE methods courses were identified by successful teachers as where they learned about those components.

348. GALT, D.B. The effects of medium and heavy compensatory acceleration resistance training on muscular strength and power. M.A. in Physical Education, 1989 (D. Santa Maria)

The purpose of this research study was to assess the effects of 2 free wt periodized training prog on strength and power levels. Gp 1 trained with medium percentages of 1RM while Gp 2 trained with high percentages. Both gps trained using compensatory acceleration techniques. 14 intermediate level resistance trainers were pair-matched into the 2 exp gps while 6 Ss served in a non-training control gp. The supine bench press exercise served as the testing and training mechanism. Strength was tested via a 1RM while power was tested at 50, 60, 70, 80, and 90% of 1RM. Power was meas by the use of the Computerized Power System, which consisted of 2 electronic goniometers interfaced with computer processing. Following an 8 wk training prog, a 3 X 2 ANOVA found no sig changes between exp gps in either strength or power parameters. A sig strength improvement was obtained for both exp gps on the post-test when compared to the control gp. It was concluded that training with high percentages of 1RM using compensatory acceleration does not provide superior strength and power improvements when compared to medium resistance training with compensatory acceleration.

349. HANLON, D.P. Hemodynamic responses to an aerobic dance conditioning program. M.A. in Physical Education, 1989 (D. Santa Maria)

The purpose of this study was to investigate the effect of 8 wk of aerobic dance conditioning on estimates of Q, SV and arteriovenous O_2 diff using a sample of 12 untrained coll-aged F (age 18-30 yr). Ss were divided into exp (7) and control (5) gps. VO_2max and HRmax were determined using a progressive treadmill test before and after training. Relative intensities of 50% and 75% of each S's VO_2max were calculated from this data. Submax Q were determined 2 to 3 days later at these 2 relative intensities using a CO_2 breathing method. This data was used to calculate Qmax, SVmax and max arteriovenous O_2 diff. Results of the statistical anal suggest that aerobic dance conditioning performed at a sufficient frequency, intensity and duration can produce favorable changes in Qmax and max arteriovenous O_2 diff. The anal did not show sig for the SVmax data.

350. HARVEY, T.R. An analysis of state and trait anxiety as related to the environment of the compulsory physical education class. Ph.D. in Physical Education, 1988 (D.H. Steel)

The purpose of this investigation was to examine the construct of anxiety as it operates within the environment of the compulsory PE class based on data obtained from the PE Anxiety Scale for Children, the State-Trait Anxiety for Children, and the Stimulus-Response Inventory of General Trait Anxiousness. The present study examined mean state gps, gender, races, and between Ss categorized by scores on the S-R GTA. The present study also tested Endler's interaction model of anxiety as it potentially operated within the PE class environment. The data were also anal via Pearson product-moment r. App 435 seventh grade students who volunteered served as Ss in this investigation. Anal of state anxiety mean scores indicated that, PE class was not a stressful situation for this subject gp. M diff between gender and between the black and white Ss indicated sig variability in respect to scores on skill ratings and several of the anxiety variables examined in the present study. In the interaction anal designed to test Endler's interaction model of anxiety, a 4 factor factorial design was used. A purpose of the study was to determine the perception of each class activity in respect to the 4 anxiety dimensions based on statistical diff between state anxiety scores from the neutral (health class) situation to the stress (pre-activity class) situation. Each S was classified on each anxiety dimension from "low" to "high" based on the S-R GTA. 2 diff classifications of "low" and "high" were used in two diff and independent sets of interaction anal. It was hypothesized that a sig interaction would be observed within the anal of each class activity for the anxiety dimension congruent to the S's perception of the class activity. 3 interactions indicated that soccer was perceived as a novel activity and, therefore, evoked higher state anxiety in those Ss who were high in S-R GTA novel situation trait anxiety. This result was also supported in the correlation anal.

351. JEFFERS, L.S. Autonomic reactivity to cognitive stress between trained and untrained individuals. M.A. in Physical Education, 1989 (B. Hatfield)

The purpose of this study was to examine the psychophysiological responses of aerobically trained Ss (N=10) and untrained controls (N=10) during negotiation of lab-induced cognitive stress. Dependent meas of autonomic reactivity included heart period (interbeat interval) and parasympathetic control (V); subjective psychological reactivity was meas through utilization of a visual analog scale (VAS). Each S completed an exercise history form and a test of $\dot{V}O_2$max in order to accurately delineate gp classification. A pre-test was given to determine the presence of pre-existing trait anxiety utilizing the Spielberger Trait Anxiety Inventory (STAI). The lab protocol for the psychological stress session included a 15-min baseline period, exposure to 3 cognitive stressors, and a 15-min recovery period. The cognitive stressors utilized (timed mental arithmetic, a general knowledge quiz, Stroop color-word task) had been previously shown to elicit sig arousal and anxiety. The EKG was monitored continuously via a Transkinetics telemetry system and recorded via a Vetter FM cassette recorder. The EKG was subsequently anal for interbeat interval (IBI) and vagal tone ($\hat{V}$). Baseline levels of anxiety were meas through the use of the STAI; arousal levels during the stressor session were recorded on a visual analog scale. Statistical anal was performed utilizing ANOVA (fit level x condition) with repeated meas on the conditions factor. Alpha was set a priori at the .05 level. ANOVA on IBI data revealed sig main effects for both gps and conditions but no sig interaction. ANOVA on vagal tone and VAS data revealed a sig main effect for conditions only. The findings of this study fail to provide evidence for the concept of a diff psychophysiological response to stress between trained and untrained individuals. In spite of the lack of diff in reactivity, however, trained Ss maintained lower HR throughout the exp protocol, suggesting an overall decrease in autonomic arousal. The lower HR in the trained individuals did not appear to be mediated by an increase in parasympathetic tone.

352. JENSEN, J.L. Intersegmental dynamics: Contribution of the armswing to propulsion mechanics in the vertical jump. Ph.D. in Physical Education, 1989 (S.J. Phillips)

This investigation was driven by a desire to understand the mechanically-based force production strategies, the kinetic strategies, that underlie the act of body projection. Specific research questions were directed toward (1) the dev of the linear vertical impulse, (2) kinematic and kinetic variables theoretically associated with the storage of elastic energy, and (3) the intersegmental dynamics of the jump as represented by torque and power patterns. These issues were explored through the anal of the propulsion mechanics of the vertical jump, with particular interest in the role of the armswing. 5 skilled adult M participated in this study. Each S performed 84 trials of the vertical jump distributed across 5 armswing conditions; no armswing, armswing, and 3 arm-weighted conditions. Exp 1 (no armswing vs. armswing) was designed to examine the change in the net vertical impulse. Exp 2 focused on the change in kinetic strategies induced by altering the torque load created on the trunk by the upper extremities. The alterations were achieved by the addition of external wt of the forearms. Though individual diff were observed, the results support the conclusion that the armswing aids in postural control of the trunk and the generation of propulsive force. The upper extremities were found to contribute 40% of the increase in net vertical impulse in the armswing condition. The attribution of 60%

of the impulse gain to segments other than the upper extremities implied some accommodation to the armswing that resulted in greater force production. Within selected Ss, evidence was found to support the hypothesis that the armswing enhances propulsive force by forcing an exploitation of the stretch-shortening cycle of the extensor musculature of the lower extremities. The role of the armswing in postural control was evident in the torque and power profiles. A flexor torque applied to the trunk as a result of the armswing opposed the hip extensor torque and appeared to act as a damper of hip extension. This finding was further supported by evidence that the upper extremities acted as a power sink coincident with a reduction in trunk rotation velocities.

353. KHAYAT-MOFID, F. The effect of variability of practice on the performance of the layout squat vault. Ph.D. in Physical Education, 1989 (K. Church)

This study focuses on Schema Theory which maintains that the practice of motor skills store a set of general memory of mvmt. This memory guides the performance of demands specifically made from the environment as well as the objective or goal of the performer. The layout squat vault was selected as the motor task to be studied, since it is a basic vault of gymnastics. The most important factor of a good vault is the angle of the hips and shoulders to the horse at the moment of contact by the hands. It was hypothesized that if Schema Theory is applicable, Ss who practiced vaulting at varying ht will achieve a better angle of contact with the horse than will Ss who practice when the vault remains at a constant ht. The investigation examined the effects of varied ht of the vault during practice to the transfer of new tasks. The study specifically studied the Schema Theory in the performance of the layout squat vault at the time of contact with the horse. Ss were 38 F, aged 9 to

11 yr, who were randomly assigned to 2 gps. 1 gp practiced at a single ht; the other gp practiced vaulting at varying ht for 36 practice trials over a period of 2 days. When this was completed, 3 consecutive vaults were assigned at a new ht for each S of both gps. At the same time, the Ss were video-taped. Using the tape, 4 qualified judges scored each of the Ss. The highest and lowest scores for each vault were eliminated. The 2 remaining scores were averaged to produce the final score. The S's t-test for the diff of M was used to determine the diff between the gps. The results showed that the high variability practice gp was superior to the non-variability practice gp. It was concluded that Schema Theory could be applied to closed skills such as vaulting in gymnastics and that there was support for the Schema Theory.

354. KYLE, S.B. Variability of the beta-endorphin response to maximal treadmill exercise. Ph.D. in Physical Education, 1989 (D.L. Santa Maria)

Current studies of the beta-endorphin response to exercise have shown wide variability in plasma beta-endorphin concentrations. Coefficients of variation have ranged from 8.9% to 157%. To determine what proportion of this variability was due to intra-individual variation and what portion was due to inter-individual variation, to determine whether training level affected the variability of response, and to investigate physiological variables which may contribute to endorphin variability, 15 M (5 highly trained, running 50 or more miles per wk; 5 moderately trained, running 15 to 30 miles per wk; and 5 untrained, engaged in no regular endurance exercise) ran to volitional exhaustion on a treadmill on 3 separate occasions. VO_2, respiratory exchange ratio (RER), rate of respiration (FREQ), HR and rectal temp (TEMP) were meas. Blood samples were taken pre-exercise, post-exercise, and 3, 6, 9, 15, and 30 min post-exercise. Hematocrit, hemoglobin, plasma lactate concentration (LAC) and plasma endorphin concentrations (ENDO) were determined. There were no sig diff among the 3 treadmill runs in max values of VO_2, HR, RER, and FREQ, or time on treadmill. Peak ENDO concentrations were sig lower for run 3 than for run 2 (Run 1 = 35.4 ± 3.5^{ab}, Run 2 = 36.7 ± 3.4^{a}, Run 3 = 30.7 ± 3.7^{b}, fmol/ml, mean±SEM). ENDO area under the recovery curve (AUC) was sig lower for run 3 than for runs 1 and 2 (Run 1 = 592.3 ± 66.0^{a}, Run 2 = 628.2 ± 72.1^{a}, Run 3 = 494.7 ± 71.0^{b}, fmol/ml, mean±SEM). Variance component distribution showed that none of the endorphin variability was attributable to conditioning level effects. App 80% of the variability was due to random inter-individual effects, and 20% to random intra-individual effects. The only variable meas which correlated with inter-individual endorphin variability was lean wt per ht (r^2=0.217, p = 0.046), possibly due to one outlier S. Both lactate AUC (r^2=0.168, p = 0.022) and HR AUC (r^2=0.235, p = 0.008) correlated sig with intra-individual variability in ENDO AUC. In summary, substantial inter- and intra-individual variability in the endorphin response to max exercise exists. The physiological variables investigated failed to explain this variability.

355. LAW, R.C. Cardiorespiratory responses of world class whitewater slalom paddlers. M.A. in Physical Education, 1988 (M. Ryder)

The purpose of the study was to examine Whitewater Slalom athletes' cardiorespiratory responses to exercise on a Kayak/Canoe ergometer and their responses to exercise on a treadmill. A comparison of these athlete's HR response was made as they performed on the Kayak/Canoe ergometer, on the treadmill, and over time to an on-the-water performance. $\dot{V}O_2$, VE, $\dot{V}CO_2$, R, and HR were determined during a run on the treadmill and while paddling on the Kayak/Canoe ergometer. HR was recorded during the on-the-water performance. The Ss consisted of

4 M World Class Whitewater Slalom Canoeists and Kayakers. The paddlers were between 26 and 30 yr old. HR max was 5% higher for the on-the-water testing than either lab ergometer or treadmill. The $\dot{V}O_2$max (ml/kg/min) was higher (13%) on the Kayak/Canoe ergometer than on the treadmill: 54 (ml/kg/min) versus 48 (ml/kg/min). The $\dot{V}$Emax was lower at the ergometer than on the treadmill. R at $\dot{V}O_2$ max (ml/kg/min) was above 1.00 for both performances. A higher r was demonstrated between HR (meas over time) on the ergometer against HR (meas over time) of an on-the-water performance (.97), than HR (over time) on the ergometer against HR (over time) on the treadmill (.79). This would suggest that the ergometer would be the preferable mode of meas for whitewater slalom canoeists and kayakers. The $\dot{V}O_2$ scores plateaued within 2-2.5 min of beginning exercise, demonstrating a very prompt aerobic on-response and development of aerobic pathways and capacities in these exercising athletes. From this study, it appears evident that to accurately meas these athletes' cardiorespiratory performance it is not a requirement to increase the time of exercise past a normal events duration. It is important to duplicate the intensity of the performance

356. MARCINICK, E.J. Effect of circuit weight training on endurance performance: Muscular strength, power endurance and lactate threshold correlates. Ph.D. in Physical Education, 1988 (B. Hurley)

Several investigators have reported sig improvements in endurance performance following resistive training despite little or no changes in VO_2 max. This finding suggests that endurance performance may be more closely related to physiological parameters other than $\dot{V}O_2$ max. The purpose of this investigation was to determine the effects of circuit wt training (CWT) on endurance performance and to relate these effects to changes in muscular strength, power endurance and lactate threshold (LT). 18 sedentary M Ss between 25-34 yr of age were assigned to either CWT (N=10) or control (N=8) gps. The CWT gp participated in 3 training sessions per wk for a period of 12 wk. Multivariate ANCOVA using the pre-test values as the covariate was employed to identify sig diff between gps. Despite no changes in treadmill $\dot{V}O_2$ max or cycle peak $\dot{V}O_2$, a sig increase ($p < 0.001$) of 33 ± 5% in cycle endurance time at 75% of $\dot{V}O_2$ max was observed following training. This improved endurance performance was sig related to an elevated LT ($r = 0.78$, $p < 0.001$). A plasma lactate concentration of 2.5 mM occurred at 58 ± 2% of peak $\dot{V}O_2$ before and 65 ± 2% of peak $\dot{V}O_2$ after training ($p < 0.001$). The CWT prog resulted in sig improvements ($p < 0.001$) of 31 ± 5% and 35 ± 7% in Cybex peak torque values for leg extension and flexion, respectively, at a test velocity of 30^o/sec. There was also a sig increase in 1RM values for leg extension (47 ± 10 vs. 61 ± 9 kg; $p < 0.001$), leg flexion 29 ± 8 vs. 44 ± 9 kg; $p < 0.01$) and bench press (55 ± 10 vs. 66 ± 8 kg; $p < 0.001$) after training. Correlational anal revealed that improved cycle endurance time was sig related to increased peak torque production ($r = 0.84$, $p < 0.001$) and 1RM leg strength ($r = 0.89$, $p < 0.001$). Power endurance leg extension values at a test velocity of 240^o/sec were unchanged following training. These findings indicate that CWT improves cycle endurance performance independent of changes in $\dot{V}O_2$ max. Improved cycle endurance performance appears to be related to increases in LT and leg muscular strength.

357. MILLER-SMITH, T.A. Reliability and validity of the modified pull-up. M.A. in Physical Education, 1988 (M. Ryder)

The purpose of this study was to examine the test re-test reliability and construct validity of the modified pull-up trainer machine as a meas of upper body isotonic muscular endurance. The Ss were 118 F volunteers between the ages of 13 and 18 from Wilde Lake HS in Columbia, MD. 59 Ss were randomly placed into the control gp while 59 were placed into an exp gp to participate in a 6 wk upper body strength prog. The prog met 3 days per wk for 20 min each session. Exp Ss participated in a wide variety of exercises designed to improve upper body endurance. 10 Ss also participated in a study of validity using the Cybex machine compared to hand dynamometer and modified pull-up scores. Pre-testing, re-testing, and post-testing consisted of a max exertion modified pull-up test. Each S also performed a hand dynamometer test. 10 Ss performed a Cybex test simulating the modified pull-up mvmt. The Pearson Product Moment r was used to meas the relationship between the following variables with these results: a) Modified Pull-up versus Hand Dynamometer- .091; b) Modified Pull-up (Pre-test versus Re-test)- .957; c) Cybex (30°) and Modified Pull-up Scores- .318; d) Cybex (30°) and Hand Dynamometer- .772; and e) Cybex (30°) and Cybex (90°)- .949. These findings indicate a sig relationship between pre-test and re-test scores, verifying test re-test reliability. A comparison of the exp and control gps in relationship to improvement between pre-test and post-test scores was found by performing a T-ratio to determine diff between gps. The critical value for t was found to be sig at the .01 level of confidence. This supports the construct validity of the modified pull-up as an upper body muscular endurance test.

358. NDANGA, W.A. Coach beliefs about team satisfaction. M.A. in Physical Education, 1989 (J.C. Young)

The purpose of this study was to examine the beliefs of co-acting and interacting sport team coaches about the importance of team satisfaction in sport. More specifically, it was designed to determine the beliefs of co-acting and interacting sport team coaches about the influence of team cohesiveness, coach-player relations, winning games, and playing time on team satisfaction. In addition, the diff in the beliefs of the coaches in relation to coach characteristics and type of sport teams coached were examined. Ss were 189 M and F HS varsity coaches including 100 interacting and 89 co-acting sport team coaches from 41 public HS in the Metropolitan Washington D.C. area. All coaches completed a special questionnaire developed by the investigator concerning coach beliefs about team satisfaction in sport and a standard instrument which meas the coach leader style (LPC scale). Beliefs about winning games, playing time, team cohesiveness, and coach-player relations were used as indicators for the coach beliefs about team satisfaction in sport. Information about coach characteristics including age, gender, self-reported leader style, coaching exp, and sport coached was also collected. Descriptive statistics and x^2 techniques were also used to explore coach beliefs from 2 dimensions: 1) beliefs about the importance of team satisfaction and 2) beliefs about the importance of team success. x^2 anal were employed to determine if there were diff in the coach beliefs in relation to coach characteristics. Finally, x^2 procedures were also used to examine the diff in the beliefs of co-acting and interacting sport team coaches about the importance of satisfaction in sport. Based on the results, the following conclusions were made. (1) The coaches believe team satisfaction is important in sport participation. They also believe that winning games, team cohesiveness, playing time, and coach-player relations are factors which contribute to team satisfaction and team success. (2) Coach beliefs about the importance of player satisfaction were related to the gender, exp, age, and leader style of coaches. Specifically, more M than F coaches believe winning is important for team satisfaction in sport. More younger than older coaches believe winning is important to team satisfaction in sport. Finally, more task than person-oriented coaches believe winning is important for team satisfaction in sport. (3) Interacting and co-acting sport team coaches do not diff in their beliefs about the importance of team satisfaction in sport.

359. NEWTON, J.A. Background predictors of health related physical fitness. Ph.D. in Physical Education, 1988 (G.F. Kramer)

The purpose of this study was to investigate known related factors involved in the predisposition of an individual to choose to participate in pos exercise behavior to determine if there were linear relationships between those factors and actual scores achieved by F on the AAHPERD Health Related Physical Fitness Test. The Ss chosen for use in this study were 56 volunteer F students from the population of students presently attending selected coll in Washington, D.C., MD, and NC. The AAHPERD Health Related Physical Fitness Test and a questionnaire on background history was admin to all Ss. It was concluded that F coll undergrad who participate in HS varsity team activities will be more likely to have a lower bf composition and score more pos on CV endurance meas than non-participants; that F coll undergrad who participate in intramural activities will be more likely to have greater flexibility than non-participants; that F coll undergrad who received family member encouragement for activity participation will be more likely to have greater flexibility than those not receiving that encouragement and if the father is perceived as providing the most encouragement, the possibility for greater CV endurance exists; that F coll undergrad who believe in the value of physical fitness are more likely to have greater abdominal strength/endurance, lower bf composition, and greater CV endurance than those not holding that belief; that neg perceived exp in HS PE instruction seems to have no effect on fitness performance scores; and that the combination of HS varsity activity participation, family member/s encouragement of activity, HS intramural participation, and belief in the value of physical fitness are important factors for F in their level of and/or intensity of activity participation.

360. NICHOLS, M.C. The effects of teacher feedback on student achievement in tennis serving. M.A. in Physical Education, 1988 (J. Young)

The purpose of this study was to determine the relationship between the quantity and quality of teacher fb and student achievement on the tennis serve in PE classes. The research on teaching has revealed the need to establish stronger relationships between teaching variables and student achievement. The Ss were 44 M and F students in beginning tennis classes at the Univ of MD, Montgomery Comm Coll and the Good Luck Comm Center. Target students who demonstrated a beginning skill level in tennis were selected and observed for 3 class periods of serve instruction and practice. Teacher fb was recorded for each S over the 3 class periods. Data on the teacher fb was monitored by the researcher and a portable tape recorder. The no. of service practice trials the target students received was monitored by a stationary video camera. Students completed a performance test on the serve prior to the instruction and immediately after the third day of fb and practice. Information was collected from students about their previous tennis experience, any practice occurring outside the course, and their perception of skill improvement. The results of r between student form and performance achievement and the 3 independent variables, initial skill level, practice trials, and teacher fb, indicated 1 sig relationship between Ss initial form and their form achievement. After Ss were categorized into high, middle, and low gps within each independent variable, no sig diff between student achievement and both practice trials and fb existed. Possible reasons for non-sig results included: low level of initial serve skill, quality of serve practice, limited class fb, a short period of learning, and environmental diff of the classes.

361. O'NEIL, L. A descriptive analysis of Physical Education Teachers' observed behavior in sex-integrated Physical Education classes. M.A. in Physical Education, 1987 (M. Arrighi)

The purpose of this study was to describe and anal the equity related behaviors of several practitioners in a PE department. Similar and dissimilar patterns of behavior among teachers, and the reasons for the observed behaviors were examined. Qualitative and quantitative methods were utilized in this study. The qualitative data consisted of field notes, informal interviews, formal interviews and document examination, and were used to examine the extent to which Title IX was implemented and the language patterns and role models chosen by the teacher. Following the qualitative data gathering, the Observation System for Equitable PE (Arrighi, 1985) was utilized in order to determine if there were any gender-diff in the variables of activity time, skill fb and class organization strategies. The Ss were 3 volunteers, 2 F and 1 M, who taught in a MD HS. The Ss were observed over a 4 mo period, an average of 2 days per wk. 1 S had participated in a sex-equity workshop prior to this study. The PE teachers were found to adhere to the Title IX guideline of Leadership and Staffing, partially to other guidelines, such as, Scheduling, and not to others, such as, Ability Grouping. In this study the lower skilled F students had the least amount of activity time. The teachers used the command style of teaching almost exclusively, had gender-related patterns of skill fb, usually used scrimmage of game play activities, and did not ability gp students. The teachers attributed some of the observed behaviors to: lack of time, wanting to do what was most convenient, wanting some activities gender-segregated, and wanting to gain student cooperation. These findings suggest that sexism exists in PE prog at programmatic and instructional levels. More supervisors and teachers need instruction and assistance in equitable teaching strategies and additional types of strategies than those used presently are necessary.

362. OSTROVE, S.M. A comparison of subcutaneous fat, measured by skinfold caliper and a portable ultrasonoscope, and the development of generalized regression equations for predicting body density in females. Ph.D. in Physical Education, 1988 (P. Vaccoro)

The purpose of this study was to examine the interrelationships between body density and subcutaneous fat tissue thickness and to develop generalized regression equations for predicting body density from ultrasonic meas of subcutaneous fat. Data were obtained on 77 F aged 24 to 72 yr and added to previously published data on 66 F aged 18 to 26 yr (Medicine and Science in Sports and Exercise, 16:97-102, 1984). The overall M age was 31.9 ± 13.7 yr. The following anthropometric parameters were: age, ht, wt, and subcutaneous fat tissue thickness measured via skinfold caliper and A-scan ultrasonoscope. Subcutaneous fat tissue thickness was measured at the triceps, biceps, subscapula, suprailiac, abdominal, calf, and thigh. Body density was determined by underwater weighing and corrected for residual volume. Mean skinfold thickness ranged from 11.0 mm at the biceps to 33.6 mm at the thigh. Mean ultrasonic meas ranged from 5.9 mm at the biceps to 12.9 mm at the abdomen. r between skinfold and ultrasonic meas at similar sites ranged from r=.65 at the triceps and abdomen to r=.77 at the subscapula and suprailiac. The r between skinfolds and body density ranged form r=.21 at the calf to r=.76 at the suprailiac site, while the r between ultrasonic meas and body density ranged from r=.26 to r=.71 (calf and suprailiac sites respectively). The data were separated into an Equation (N=103) and Validation (N=40) sub-sample. 18 generalized regression equations predicting body density were dev, 9 employing age and skinfold meas and 9 employing age and ultrasonic meas. Multiple r using skinfolds ranged from R=.725 to R=.871 and from R=.767 to R=.853 when employing ultrasonic meas. When validated, the multiple r uniformly decreased in magnitude. None of the regression equation employing ultrasonic meas performed as well as their skinfold counterparts. It was concluded that ultrasonic meas of subcutaneous fat can be used to predict the body density of F, however, they provide no greater predictive power than equations based on skinfold meas.

363. PFLUEGER, H.G. The academic success and retention of Community College athletes and nonathletes. Ph.D. in Physical Education, 1988 (L. Vander Velden)

The purpose of this investigation was to compare the contributions of personal and social psych factors to the acd success and retention of Comm Coll athletes and nonathletes. 143 athletes and 170 nonathletes completed self-admin survey questionnaires to determine the relationships of gender, race, socioeconomic background, and acd preparedness, as well as acd self-concept, educ and occupational aspirations, and athletic aspirations to acd success and retention. Their coll records provided coll GPA and retention status. x^2 and t-test anal determined no sig diff between acd performance and retention of athletes and nonathletes or athletes who aspired to high and low athletic aspirations. Acd performance of athletes was related to race, acd preparedness, acd self-concept, and educ aspirations, but not related to gender, socioeconomic background, occupational aspirations, or athletic aspirations. Acd retention of athletes was related to acd self-concept and educ aspirations, but not related to gender, race, acd preparation, socioeconomic background, and occupational aspirations. According to discriminant function anal, race, acd preparation, acd self-concept, and father's educ were the highest predictors of acd success of athletes, while coll GPA, educ and occupational aspirations, acd self-concept, and mother's educ were the highest predictors of retention. For nonathletes, acd success was related to acd self-concept and acd preparedness, whereas retention was related only to coll GPA. It was concluded that no diff existed between the acd success rates or the acd retention rates of athletes and nonathletes and of athletes with high and low athletic aspirations; however, there was a diff in the relative contributions of the structural and social psych predictor variables to both acd success and retention for athletes and nonathletes.

364. SIEN, S.M. Lean body mass and blood pressure changes in borderline and mildly hypertensive subjects following exercise training. M.A. in Physical Education, 1988 (C.O. Dotson)

The purpose of this study was to investigate the effects of changes in lean body mass upon BP in borderline and mildly hypertensive Ss following exercise training. The anal provided information on lean body mass and BP changes across 4 gps: control, aerobic training, circuit wt training, and a combination aerobic/circuit wt training. In addition, this study compared changes that occured in VO_2 max, wt, %bf, and grip strength. The Ss were 28 M and F volunteers between the ages of 30 and 60. A 3-factor repeated meas statistical design was used to examine the relationships among the variables. The results of the statistical anal seem to justify the following conclusions. Reductions in BP following aerobic, circuit wt, or aerobic/circuit wt training prog are not related to changes in lean body mass. The BP of borderline and mildly hypertensive Ss can be favorably influenced through aerobic, circuit wt, or aerobic/circuit wt training prog. It appears that changes in BP are most likely related to the hemodynamic changes associated with exercise training.

365. TOMASSONI, T.L.A. Exercise testing and training of children following surgical correction of Tetralogy of Fallot (TF). Ph.D. in Physical Education, 1989 (P. Vaccoro)

The purpose of this study was to compare the responses at rest and during exercise of patients following surgical repair of Tetralogy of Fallot (TF). The physiological parameters assessed included: diffusing capacity of the lung for carbon monoxide (DL_{co}), HR, VO_2, ventilation (VE), and Q. The second part of this investigation examined the effects of an aerobic exercise training prog on the above parameters in postoperative TF children. The Ss in part one of this study consisted of 40 children. 20 Ss with repaired TF served as 2 gp, while 20 Ss served as controls. Resting DL_{co}, HR, VO_2, VE and Q were meas. A treadmill test was used to obtain peak values for these same variables. In part two of this investigation, 5 of the TF children participated in exercise training at Children's Hospital twice a wk for 12 wk. Prior to the program, a treadmill test was admin. The prog included aerobic dance, rope skipping, and jogging. During the training sessions, exercise intensity was increased from 60 to 80% of the peak HR obtained on the preliminary exercise test. Following the prog, another exercise test was admin. Student t-tests were used to assess diff between control and TF patients and also to assess training effects. There were no sig diff between gps on all resting parameters, peak VO_2 and peak VE. TF Ss exhibited sig lower values than controls for peak Q ($p < .05$), peak DL_{co} and peak HR (p < .10). 12 wk of exercise training resulted in no sig changes in any resting meas and peak HR (p > .05). There were increases in peak VE and peak Q (p < .05). Peak VO_2 (L/min), VO_2 (Ml/kg/min) and DL_{co} were also increased (p < .10). The exercise capabilities of post operative TF Ss are lower than normal. Their capabilities can be improved via an aerobic exercise prog.

366. TRULY, T. Getting the system started: Intralimb coordination for gait initiation in newly walking infants. M.A. in Physical Education, 1988 (J.E. Clark)

Initiating the first step of a walking cycle requires that the segments of the lower limbs be coordinated and controlled. The organizational and dev changes in intralimb coordination for the initiation of gait were examined from a dynamical systems perspective. 3 specific hypotheses were tested for the first step of a walking cycle: 1) newly walking infants would employ a diff style of limb organization than adults, 2) dev changes would occur in the organization of the limbs and 3) dev changes would occur in the control parameters. In order to address these hypotheses, 5 adult and 5 infant walkers were filmed while walking along a walkway. Infant walkers were filmed for the study when they first demonstrated at least 3 but no more than 5 independent steps. The infants were filmed for 5 consecutive wk thereafter and again 2 mo later. The intralimb coordination between the thigh and shank of the swing leg for the first step was meas by a phase angle on a phase plot. Evidence from this study suggests that at the onset of independent walking, infants co-order the thigh's reversal of the shank's cycle in an adult-like manner. The anatomical constraints of the body and the task constraints of walking appear to dictate the dynamic relationship between the leg segments. However, newly walking infants diff from adults in the co-ordering of the shank's reversal to the thigh's cycle. The control parameters, position and velocity of the segments at the reversal points, may have provided some insight into why a dev change in coordination occurred. Although the shank was dynamically constrained by the task of walking and the anatomical structure of the body, it appears that newly walking infants were not capable of controlling the shank in the same manner as adults.

367. WALFORD, G.A. Proprioceptive and visual feedback in golf skill acquisition. Ph.D. in Physical Education, 1988 (D.H. Steel)

The primary purpose of this study was to investigate the use of proprioceptive and visual fb on learning the golf skills of pitching and putting. A secondary purpose of the study was to investigate the influence of visual and kinesthetic imagery, skill level, and focus of attention upon the primary treatment conditions. 64 M and 31 F Ss (N=95) were randomly assigned to a visual fb gp and a proprioceptive fb gp. The ages of the Ss ranged from 18 to 68 with the ave M age being 22.49 while the ave F age was 24.64. The Ss were exposed to both the golf pitch and golf putt conditions in a within Ss design. Skill tests for pitching and putting were devised by the author to meas performance. Both gps received similar instructions and testing procedures with the exception that the proprioceptive gp used blindfolds during the practice phase between the pre-test and post-test. The blindfolds forced the Ss to use proprioceptive (kinesthetic) cues rather than visual cues. The pre-tests and post-tests were executed with vision by both gps and the comparison of the scores meas learning of the golf skills. Skill level, imagery ability and focus of attention were meas for each S to determine if these variables had an interacting effect on learning. Based on the results of this study the following conclusions can be made within the limitations of this study. (1)

There is no diff between the visual fb gp and the proprioceptive fb gp in learning the golf pitch and the golf putt. (2) There is no diff in learning golf skills under any treatment conditions for golfers with varying levels of golf skill, imagery ability, or focus of attention.

368. WHITALL, J. A developmental study of interlimb coordination in running and galloping. Ph.D. in PHysical Education, 1988 (J.E. Clark)

Using a dynamical systems perspective, it was proposed that interlimb coordination is organized to exploit the dynamic properties of the body with min cognitive input. From this perspective, 2 research questions were formulated which have dev implications. (1) Is the interlimb coordination of running and galloping predictable from the properties of coupled non-linear, limit-cycle oscillators? And are these properties equally predictable over dev time? (2) Do cognitive tasks interfere with the interlimb coordination in running and galloping? And is this effect of cognitive tasks constant over dev time? To answer these questions, gps of 3 yr-olds, 4 yr-olds, 6- to 7 yr-olds, 9- to 10 yr-olds and adult F were filed as they traversed a 10 m runway. For question 1, the oscillatory properties of entertainment and phase-locking were tested in a no-perturbation condition. The weighing of one leg allowed the property of structural stability to be tested. For question 2, a cognitive task was performed concurrently with the motor task. 2 separate tasks were used, one verbal (singing) and one non-verbal (memorization). In addition, these tasks were combined with the wt perturbation condition. Interlimb coordination was assessed by temporal and amplitude phasing meas. Entrainment and phase-locking were meas with the variability of phasing and m phasing meas respectively. Structural stability was meas using deviation phasing measures.

As predicted, the interlimb coordination of running and galloping demonstrated organizational properties similar to those predicted by non-linear, limit-cycle oscillators. Dev these principles appeared to be present from 3-yr of age. In general, 3- and 4 yr-olds were less stable in their phasing patterns and all age gps showed less stability in the gallop. The addition of cognitive tasks did not affect the coordination of the limbs for either gait or any age. Once initiated, the coordination pattern appeared to organize itself and no further attention was required. Only the overall speed of the trial appeared to be affected by concurrent cognition. Singing affected the step-time while memorization affected the step-lengths. It was speculated that force and time variables play somewhat diff roles in the interlimb coordination of fundamental locomotor skills.

UNIVERSITY OF MASSACHUSETTS (P. Freedson)
AMHERST, MASSACHUSETTS

369. EVENSON, S.K. Familial aggregation and physical activity. M.S. in Exercise Science, 1989, 222 p. (P.S. Freedson)

The primary purpose of this investigation was to explore the aggregation of physical activity patterns between parents and their children. A secondary objective included the relationship of children's gross motor dev (TGMD) with physical activity. To assess physical activity, 30 5-9 yr old children (CHD) and their biological parents (PAR) wore a Caltrac electronic accelerometer and completed a Caltrac Activity Record (CAL REC) for 3 consecutive 12-hr (720 min) days, including one weekend day. Additionally, parents' assessment (PAS) of the child's physical activity was compared to their child's assessment (CAS) of the child's activity as assessed by questionnaire (interview method). A REANOVA showed no sig diff ($p > .05$) between CAL CT or CAL REC means across days for any gp. Therefore, m values of the Caltrac scores (CAL CT) and time spent in inactivity (INACT= <3 MET) and activity (ACT= >3 met) based on CAL REC (using standard adult activity intensities for PAR and CHD) were used for anal. PAR and CHD were divided into low active (LOACT) and high active (HIACT) gps using CAL CT and CAL REC. To determine whether the children of HIACT and LOACT parents had similar activity patterns to their parents, a joint frequency distribution of LOACT and HIACT PAR and CHD was anal by the X^2 statistic. Familial aggregation of physical activity for CAL CT and CAL REC occurred in 67% (p=.06) and 79% (p=.002) of the families, respectively. When fathers were examined independently with their child, familial aggregation of physical activity occurred in 67% (p =.06) and 73% (p=.01) for CAL CT and CAL REC, respectively. Familial aggregation of physical activity for mothers with their child occurred in 70% (p=.04) and 74% (p=.01) for CAL CT and CAL REC, respectively. In the CAL CT anal, only one family had a LOACT PAR with a HIACT child. In the CAL REC anal, there were no LOACT PAR with a HIACT child. Therefore, if parents were LOACT, their child also tended to be LOACT. There were no meaningful sig relationships between children's TGMD and physical activity, nor between CAS and PAS. The results suggest that familial aggregation of physical activity exists within families, and that physical inactivity may exert a more influential modelling behavior than physical activity.

370. PORCARI, J.P. The effects of high-resistance strength training on the electromyographic and pressor responses to static and dynamic exercise. Ph.D. in Exercise Science, 1989, 206 p. (P.S. Freedson)

The purpose of this study was to determine if an increase in leg strength could reduce central command (as assessed by IEMG), and the corresponding CV responses to dynamic and static leg exercise. 14 exp Ss were compared with 10 controls on HR, SBP, DBP, and IEMG response during cycle ergometry (CE) and isometric holding (IH) tasks before and after the exp gp underwent a 10 wk high-resistance leg strengthening prog. For CE, Ss performed incremental cycling tests (.5 kg increases every 3 min) to exhaustion pre and post-testing. HR, SBP, DBP, and IEMG were meas at each stage. For IH, Ss held 40% of pre-testing (ABSOLUTE) and post-testing (RELATIVE) MVC, on alternate days, for as long as possible. HR, SBP, DBP, and IEMG were meas 15 s and 75 s into the contraction period. The exp gp increased leg strength 37% ($P < .05$) pre to post-training and submax HR (9%), SBP (7%), and IEMG (14%) responses were sig lower ($P < .05$) post-training. Results for IH were inconclusive. There were no changes for either gp when the same RELATIVE load was held post-testing. For the ABSOLUTE condition, the exp gp showed a reduced HR (5%) ($p < .05$) response, both gps decreased SBP (4%) ($p < .05$), and neither gp changed in DBP or IEMG ($p > .05$). In conclusion, the decreased IEMG response supports a reduction in central command as the mechanism producing the reduced pressor response to CE. The inconclusive results for IH warrant further investigation in that area.

371. SHAFFER, M.L. *The effects of simulated weightlessness (water immersion vs bed rest) on isokinetic muscular strength and endurance*. M.S. in Physical Education, 1989, 129 p. (W.B. Bynum)

7 healthy M (25-40 yr) underwent one 6 hr water immersion (WI) (80° foot-down) and one 6 hr bed rest (BR) (6° foot-down) session. Ss were meas for isokinetic strength, at least 1 wk prior to and immediately following each treatment, in knee flexion/extension, shoulder horizontal abduction/adduction, and ankle plantar/dorsiflexion at speeds of 0, 60, 120, and 180°/sec. Endurance was only meas for knee flex/ext (180°/sec for 30 sec). Meas

obtained from treatments were compared to baseline data and each other using a repeated meas ANOVA ($p < 0.05$). Results demonstrated sig strength losses in knee flex/ext at 120 and 180°/sec. The Bonferroni post-hoc t-test revealed sig losses in knee strength at 180°/sec following both treatments and at 120°/sec following WI only. These losses corresponded with M wt losses of 1.4 and 2.0% for BR and WI, respectively. No sig changes resulted from the other variables meas. Urinary output meas during both treatments was higher following WI (M=1,354 ml ± 141.8S.E.) as compared with BR (M=975 ml ± 139.4S.E.) using a t-test anal ($p < 0.05$). Results indicated that isokinetic knee flex/ext strength was sig reduced by a treatment induced dehydration of 1.4-2.0%. Trends showed a tendency towards strength losses in the lower body and were greater in the antigravity muscles, namely the quadriceps.

UNIVERSITY OF MISSISSIPPI (D. Cheek)
OXFORD, MISSISSIPPI

372. HARTMAN, H. The comparison between an aquatic running program versus a hard surface running program on aerobic capacity and body composition. M.Sc. in Exercise Science, 1989

The purpose of this study was to examine the effects of an 8 wk aquatic running prog vs hard surface running on body composition and aerobic capacity. 10 coll-aged F served as controls. A pre-test and post-test evaluation was conducted on body composition and VO_2 max. The body composition evaluation was meas by bioelectrical impedance. The treadmill stress test is a direct meas of the max capacity of the aerobic oxidative mechanism which requires a period of exercise at very close to max intensity. This was accomplished using the Bruce Treadmill Protocol (Appendix A). The ECG was monitored continuously and the test halted if any unusual changes occurred. After an 8 wk training prog the hard surface running gps showed improvements in body composition and aerobic capacity over the aquatic running prog. But the aquatic running gp also showed small improvements in aerobic capacity and body composition with less chance of repetitive injuries. At the end of the 8 wk prog the hard surface running aerobic capacity was sig diff from the control gp ($p < .05$). These results compared favorably with the results of other fit prog.

373. ROBERT, J.J. A study to investigate cardiovascular efficiency and body composition obtained in low-impact and low-impact-resistance aerobic dance exercise in college women. Ph.D. in Physical Education, 1989 (E.R. Anderson)

Heart disease is a national epidemic. CV disease kills more Americans each yr than all other causes of death combined, including accidents and infant mortality. Few scientific studies have been done to assess the physiological changes that accompany adherence to an aerobic dance prog. Even fewer studies have been done to assess the benefits obtained in low-impact aerobics. The purpose of this study was to determine if low-impact and low-impact-resistance aerobic dance exercise would sig: (1) decrease resting HR; (2) increase TVO_2 ml/kg and TVO_2 1; (3) decrease resting SBP; (4) increase O_2 pulse; (5) decrease % BF; and (6) increase % of lean BW. A pre-test, post-test, control research design was utilized to anal the dependent variables between 2 and 3 treatment gps and the diff in the same treatment gp from the pre- to post-test. The sample consisted of 33 F students, age range 18-24 with a M age of 19, enrolled in the Univ of MS. The treatment gps consisted of low-impact aerobic dance (N=9), low-impact-resistance aerobic dance (N=11), and the absence of treatment on the control gp (N=13). A 1 way ANCOVA was used to assess the diff between 2 and 3 levels of treatment on the dependent variables and a 1 directional paired t-test was utilized to assess diff in the pre- and post-test m. Results indicated sig increase ($p < .01$) in TVO_2 ml/kg and TVO_2 1 for the low-impact and low-impact-resistance gp. There was a sig increase ($p < .01$) between the 2 treatment gps and the control gp for O_2 pulse. There was a sig diff in resting HR ($p < .05$) between the 2 treatment gps and the control gp. There was no sig diff ($p < .05$) between gps for TVO_2 ml/kg or TVO_2 1, resting SBP, %BF and % of lean body WT. There was no sig decrease in resting SBP, resting HR, %BF and % of lean BW. There was no sig decrease in resting SBP, resting HR, %BF, or increase in % of lean BW for either treatment gp and there was no sig increase in O_2 pulse for the low-impact gp.

UNIVERSITY OF MISSOURI-COLUMBIA (J. Roberts)
COLUMBIA, MISSOURI

374. BECKER, D.V. Differences in the RV/VC ratio between groups of athletes and nonathletes. M.A. in Physical Education, 1989, 89 p. (B.R. Londeree)

The purpose of this study was to determine if body size and type of training affect RV and the RV/VC ratio in a predictable manner. Pulmonary meas for forced vital capacity (VC), FEV for 1 sec (FEV 1.0), max voluntary ventilation for 15 sec (MVV 15), VC/FEV 1.0 ration (FEV %), and RV were performed upon 50 M between the ages of 18-30 yr. HT, WT, and skinfold meas were taken on these Ss also. Due to poor agreement on duplicate meas, only 23 Ss, consisting of 10 swimmers, 3 marathon runners, 5 body builders and 5 nonathletes, were used in the final statistical anal and regression equations. The statistical anal demonstrated that marathon runners had a sig larger RV/VC ratio ($p \leq 0.05$) than the swimmers, body builders and non-athletes. There were no sig diff for the RV/VC ratio among the body builders, swimmers and nonathletes. Through regression anal the following equation was derived: $RV(L.)=0.456+0.606*(1 \text{ if marathon runner, } 0 \text{ if not})+0.244*VC$ ($R^2=0.4265$, SEE=.328). The relatively large unexplained variance suggests a need to conduct additional studies with the current variables as well as others upon a large gp of Ss.

375. HOWE-ARMSTRONG, V. A causal comparative study of the relationship of seven variables to the incidence of amenorrhea. M.A., 1988, 35 p. (B.R. Londeree)

To determine which factor(s) play the most important role in the incidence of amenorrhea a causal comparative study was done using 35 F Univ of Missouri-Columbia students of child-bearing age from the disciplines of PE, physiology, dance, journalism and varsity athletics. Amenorrhea F (N=18) were compared to regularly cycling counterparts (N=17) in regards to body composition, psych profiles, exercise patterns, dieting behaviors, age at menarche and life stress levels. Data were collected through questionnaires, interview sessions, anthropometric meas and 2 formal psych tests. While the relationship between body composition, life stress scores, age at menarche, exercise hrs, neuroses, exercise intensity, exercise associated stress, caloric intake and dieting behavior were not statistically sig the variable of vegetarian style diet was found sig ($p < .05$). There were also many trends revealed. Of the 11 Ss who were reported to be vegetarians and/or on strict diets 9 were amenorrheic. 10 of the 17 dieting Ss were amenorrheic and of the 11 Ss below 22% fat, 7 were amenorrheic. A stepwise multiple regression anal was computed and found vegetarianism as the best single variable model ($r^2=.15$) in classifying amenorrheic Ss from nonamenorrheic Ss. The best 2 variable model was that of vegetarianism and calories 2 (1000-1199) ($r^2=.29$). Exercise hrs, vegetarianism, and calories 2 was the best 3 variable model found (r^2=.34). Exercise stress 3 (high) was added to create the best 4 variable model (r^2=.41). A 5 variable model of exercise hrs, vegetarianism, calories 2, exercise stress 3, and intensity 2 (moderate) correctly classified 29 of the 35 Ss (r^2=.41). These findings suggest that a F who exercises 10 or more hrs per wk at moderate intensity with high stress associated with the exercise and who also has a vegetarian style diet consisting of 1000-1199 calories per day may be at increased risk of exp amenorrhea. However, menstrual cycle cessation may also be very dependent upon the individual's threshold of tolerance for each of the factors involved.

376. HOSWORTH, D.A. Caffeine's effect on energy substrate systems during cycling at two intensities. M.A., 1987 137 p. (B.R. Londeree)

This study investigated the effects of oral caffeine ingestion on energy metabolism at 2 cycling intensities. 6 m cyclists exercised for 1 hr on bicycles secured to a windtrainer at intensities which elicited blood lactate (HLa) of 1.5 and 2.5 mM. 2 trials were performed at each intensity with ingestion of either 250 ml caffeine solution (5 mg/kg body wt) (1.5-CAF and 2.5-CAF) or of a placebo (1.5-PL and 2.5-PL). The CAF trials produced equivalent increases in lipolysis at both intensities as determined by plasma glycerol ($p < .45$). RER indicated no increase in fat usage during the 2.5-CAF trial, but increased VO_2 at both intensities contradicted this finding ($p < 0.01$). The CAF trials produced increased plasma glucose ($p < 0.01$) and increased HLa ($p < 0.01$) during both intensities suggesting a favorable environment for glycogenolysis. HLa appeared to inhibit expected increases in lipolysis during the 2.5 mM HLa trials. These results indicated that caffeine does not increase fat use during cycling at 2.5 mM HLa but does at 1.5 mM HLa.

377. MINOR, M.A. Exercise maintenance behavior of subjects with arthritis following participation in a supervised exercise program. Ph.D., 1989, 185 p. (J.D. Brown)

The purpose of this research was to identify factors associated with a supervised exercise exp that best explained maintenance of exercise behavior over time. The method used was an integral secondary anal of new and existing data collected in a randomized, clinical trial of the efficacy of aerobic exercise for Ss with rheumatoid arthritis and osteoarthritis. The intervention was 12 wk of either walking or aquatic exercise performed at individually prescribed exercise HR. Variables of interest included aerobic capacity, exercise test duration, flexibility, disease meas, self-reported health status, social support for exercise, impact of illness on exercise and post-intervention exercise behaviors. Using the all possible regressions search procedure, regression functions were selected to explain exercise behavior at 3, 9 and 18 or more mo after the exercise intervention. At 3 mo, aerobic capacity, depression, anxiety and social activity comprised the selected regression function with an R^2 of 0.45. At 9 mo, physical activity, anxiety, depression, friend support for exercise and previous exercise behavior were included in the selected function with an R^2 of 0.45. At 18 or more mo after the exercise class, aerobic capacity, pain, and previous exercise behavior produced the function with an R^2 of 0.42 (p=0.0001 for all functions). The best explanatory variables were baseline meas (4), change scores (4), social support (1), and prior exercise behavior (2). Change scores added sig to all explanatory models. The further in time from the exercise class exp, the less important baseline meas became in explaining current exercise behavior.

378. OBERMEYER, D.H. A comparison of the effects of three strength training programs on the development of rotational trunk strength. Ed. D. in Physical Education, 1987, 144 p. (J.A. Roberts)

Current research supports the specificity of training concept: a muscle trained in a specific mvmt will increase its ability to create effective force in that mvmt. Thus, rotatory trunk muscle training exercises utilizing resistance to rotation should increase the torque through which rotatory trunk mvmt is made. Current training methods emphasize trunk flexion and extension (situps and back extensions), which involve many of the same muscles used in trunk rotation. However, these exercises have not been substantiated for producing rotatory trunk strength gains. The purpose of this study was to determine the effects of 3 strength training prog on the dev of rotational trunk strength. 59 volunteers from wt training classes at the Univ of Mo-Columbia were randomly assigned to 3 treatment gps. Each S underwent pre-test and post-test rotational trunk strength evaluations on the Isostation B-100 machine. All Ss in the 3 gps participated in a 17-exercise general strength training prog, which excluded utilizing trunk muscles in concentric or eccentric contractions. In addition, Exp Gp I Ss trained on the O-TRIM (Obermeyer Trunk Rotation Isotonic Machine), which provides resistance to trunk rotation exercises, while Exp Gp II Ss performed sit-ups and back extensions. The Control Gp Ss abstained from any additional exercises. The 1 way ANCOVA statistical procedure was employed to anal results, with gain scores as the DV and the pre-test scores as the covariate. Statistical hypotheses were tested by performing t-statistic m comparisons on the adjusted m. Within gp comparisons demonstrated statistically sig strength gains in all 3 gps. However, Exp Gp I achieved statistically sig greater strength gains when comparisons were made among gps. Conclusions: 1. The most effective way to dev rotational trunk strength is to train the trunk muscles using resistance to trunk rotation. 2. Although a general strength training prog that does not include trunk exercises, or includes non-specific trunk exercises will result in rotational trunk strength gains, such prog are less effective than one which emphasizes specific rotational trunk exercises. 3. The O-TRIM offers an effective modality for the dev of rotational trunk strength.

379. PEEL, J.C. The effects of health education and the influence of selected variables on the continuation of aerobic activity by women. Ph.D., 1988, 153 p. (J. D. Brown)

The purpose of this research was to study the effect of HE and relapse prevention strategies on the continuation of aerobic activity by F. The overall adherence rate 2 mo following sched classes was 74.28% and 64.29% for the HE and non-HE gps who returned their follow-up questionnaires, respectively. This diff in proportion of adherence was sig at p.03. The variables of age, exercise knowledge, self-motivation, SBP, DBP, BW, %BF, hip and shoulder flexibility, recovery HR, and resting HR were tested at the beginning of the prog. The variables were anal to determine which would be predictive of adherence or non-adherence. The overall comparison of adherers to non-adherers indicated that adherers scored higher on exercise knowledge, lower on DBP, and higher on %BF. Adherers in the HE gp were more self-motivated, had lower resting HR, lower DBP, and a lower % BF than non-adherers. Adherers in the non-HE gp meas higher on %BF and on exercise knowledge than non-adherers.

380. VANITSUPPAVONG, T. Perceived differences in material management among personnel at the tambul, district, and provincial levels of

health care facilities in Pattani, Thailand.
Ph.D., 1988. (J. D. Brown)

This study was designed to investigate the diff and factors between current practice and desired practice (theory) of maintenance management as perceived by the Public HE Officers of 3 HE care facility levels in the Province of Pattani, Thailand. Included in the 3 HE care facility levels studied were: (1) Tambul HE Station; (2) District Public HE Office, and District Hospital; and (3) Provincial Public HE Office. A questionnaire was used in collecting data on: (a) maintenance management problems regarding malfunctioning equipment, vehicles and buildings, (b) equipment and building files, (c) maintenance and repair services, (d) personnel in charge of maintenance management, and (e) improving maintenance management. The sample included 93 Tambul HE care personnel, 18 District HE care personnel and 27 Provincial HE care personnel. There were 48 HE workers, 43 midwives, 13 nurses, and 7 physicians. The obtained data were anal by coefficient alpha, a 3 factor univariate ANOVA, a 4 factor MANOVA, Duncan's new multiple range test and Newman-Keuls test. The physicians were the most likely to recognize the desirability of equipment and building files (current practice) and maintenance and repair services (current practice). Those with the highest level of professional training factors were the most likely to favor having a planned sched for maintaining and repairing as their most important factor regarding the equipment and building files. Also, the HE workers, mid-wives, and nurses indicated the Chief Provincial Public HE Officer was the most influential officer among the personnel in charge of maintenance management. All of the Public HE Officers in the Province of Pattani, Thailand are likely to accept that the maintenance management problems of malfunctioning equipment, instruments, vehicles and buildings must be solved in order to improve maintenance management. Also, they are likely to desire the improvement of the equipment and building files, maintenance and repair services, and personnel in charge of maintenance management.

381. WOOLEDGE, D.E. The effects of gross motor activities on symmetrical motor performance and integrated style of information processing. Ed.D in Physical Education, 1988, 170 p. (J.A. Roberts)

Children with LD often demonstrate a low level of integrated style of information processing. In addition, many of these children portray a lack of coordination, which may include symmetrical dysfunction. Children who are able to physically perform asymmetrical mvmt are better equipped to cope with learning new motor skills, and, therefore, have a greater chance of exp success in their daily lives. In addition, children who are able to process information in an integrated fashion are more likely to exp a greater amount of success in their acd endeavors. The purpose of this research was to apply a gross motor activity approach to a gp of children with LD who displayed the above characteristics. Comparison on asymmetrical motor functioning as well as integrated style of information processing then would be made to a control gp displaying the same characteristics who had received a treatment of passive rec activities. 26 third through sixth grade students who were classified as LD, who were physically able-bodied, and who were attending the Fulton Public School System, Fulton MO were randomly assigned to 1 of 2 treatment gps. Each S underwent screening, pre-test and post-test evaluations on the following instruments: asymmetrical portion of the subtest "Jumping," The Purdue Perceptual Motor Survey and Your Style of Learning and Thinking, Form CC(ELE). Each S was individually admin a prog of activities for 10 wk, meeting twice weekly with an instructor. The exp gp was presented dev, cross-patterning, problem-solving tasks involving gross motor activities while the control gp was presented passive rec activities. An ANOVA with repeated meas on a mixed design was utilized to anal the raw score data. 6 hypotheses were tested, 3 on each of the DV: asym-metrical motor performance and integrated style of information processing. A comparison of the 2 treatment gps resulted in no statistically sig diff being evident on either variable. Time of testing resulted in the combined gps' post-test score being statistically sig higher than the combined gps' pre-test score on both DV. Effect of interaction between treatment and time of testing was sig on each variable, which meant that both the type of treatment and the time of testing needed to be taken into consideration in order to ascertain the full effect of the treatment. Conclusions: 1. A prog consisting of dev, cross-patterning, problem-solving activities is effective in producing improvement in asymmetrical motor performance of children with LD between the ages of 8 and 14. 2. A prog consisting of dev, cross-pattering, problem-solving activities is effective in producing improvement in integrated style of information processing of children with LD between the ages of 8 and 14.

UNIVERSITY OF NEW MEXICO (J.A. Gustafson)
ALBUQUERQUE, NEW MEXICO

382. MCLEOD, M.F. A teacher effectiveness comparison of novice student teachers and student teachers in Physical Education. Ph.D. in Physical Education, 1989

The purpose of this study was to compare the teaching effectiveness of PE novice student teachers and student teachers at the Univ of NM. Teaching effectiveness was determined by student achievement adjusted gain scores in an Exp Teaching Unit (ETU), and on the amt of ALT-PE accrued in classes taught by novice student teachers and student teachers.

There were 13 Ss involved in the study; 6 novice student teachers and 7 student teachers. The Ss were all teaching at one of the Albuquerque area HS. 1 ninth grade class taught by each S was selected to be used in the study. Data collection consisted of 4 class meetings. The first day a pre-test on a novel hockey skill was given. On the second and third days the Ss taught the ETU, which was designed to improve the skill of the students on the novel skill. During this time ALT-PE data was collected on each S by using the ALT 1982 Revision Coding System (Version II). On day 4 a post-test, similar to the pre-test, was conducted to meas student improvement. For each S a % of ALT-PE was calculated, and adjusted gain scores were computed for each class taught by the Ss. An ANOVA was used to statistically anal the ALT-PE data. A sig diff between the 2 teaching gps was shown (p < .0015), accounting for 56.18% of the variance. A comparison of the m indicated that student teachers (M =26.87, SD=7.70) accrued more ALT-PE than novice student teachers (M=11.70, SD=4.62). Adjusted student post-test scores on the novel skill were statistically anal by the use of ANCOVA. Anal of the data indicated almost sig diff (p=.068) between classes taught by novice student teachers and those taught by student teachers. However, comparing the adjusted post-test m of each gp found a distinct diff between novice student teachers (M=32.95, SD=5.71) and student teachers (M=45.56, SD= 6.66). This indicated that the classes taught by the student teachers did achieve higher post-test scores than those taught by the novice gp, although statistical sig was not quite attained. To a sig degree, it was determined that student teachers did accrue more ALT-PE than novice student teachers during this study. The adjusted post-test scores, although sig statistical diff was approached but not exceeded, did indicate that pupils in classes taught by student teachers were able to perform the novel skill more effectively at the end of the ETU than were those in classes taught by novice student teachers. This indicated a possible assoc between improved post-test scores and amount of ALT-PE in this study. Conclusion can be made that the student teachers were more effective teachers than the novice student teachers during this exp. These results also indicate that the student teachers were successfully taught the importance of ALT, and how to effectively use it in a class setting.

UNIVERSITY OF NORTH CAROLINA (F. Pleasants)
CHAPEL HILL, NORTH CAROLINA

383. AUGUSTA, V.L. Drug use survey of North Carolina high school athletes: 1987. M.A. in Physical Education, 1988 (E. Shields)

The purpose of this study was to profile the current status of substance use by NC HS athletes. Using a stratified cluster sampling technique, 19 HS in the state were randomly selected to take part in the study. Of the total sample (N=2680) 1739 were M (64.9%) and 941 were F (35.1%). Athletes were in grades 10, 11, and 12 and ranged in age from 12 to 21. Racial composition was 34.5% Black, 62.4% White, and 3.1% Other. The investigator visited each school where student-athletes were assembled as a gp to complete a substance use questionnaire. The statistical anal used was a X^2 test of independence. Observed values for lifetime exp (ever tried) with the 11 substance categories diff sig from expected values as a function of gender, grade, race and region. Observed values for current use patterns in 9 substance categories and 4 frequency categories diff sig from expected values as a function of gender, grade, race, and region.

384. BURTT, S.L. Physical activity, calcium intake, body composition and stature as predictors of bone indices in college-aged men. M.A. in Physical Education, 1988 (J.B. Anderson)

Bone mineral content and bone density parameters at 2 radial and 1 metatarsal site were examined in 40 coll-aged M athletes and non-athletes. Indices of cortical and trabecular bone at the radius were sig correlated across the total population. BW, lean body mass and activity were sig associated with greater bone parameters. Physical activity was sig correlated with greater lean body mass and higher BW. Subgroup data indicated that higher BW and current intake of calcium were both associated sig with greater indices of cortical and trabecular bone, respectively, at the first metatarsal shaft and distal radius. Meas of body composition (BW, lean body mass) in the high activity sub-gp were sig correlated with all but 1 (DRBD) bone parameter. All 6 multivariate predictive models , however, incorporated 1 of the 2 descriptors of body build and 2 models (MRBMC, DRBD) included physical activity. BW served as the best single predictor of metatarsal bone parameters: (MTBMC: F(1,38)=31.97%, $p \le 0.0001$; MTBD: F(1,38=31.73%, $p \le 0.0001$).

385. CASO, C.L. A history of the Physical Education activities program at the University of North Carolina at Chapel Hill from 1950 to 1983. M.A. in Physical Education, 1988 (B. Newman)

This study examined the dev that occurred in the PE Activities Prog at the Univ of NC at Chapel Hill from 1950 to 1983. Changes in the prog included a reduction of the PE requirement, implementation of coeduc classes, more student freedom in selecting courses, and a shift from team sports to lifetime and fitness activities. Among the reasons cited for these changes were the implementation of Title IX, the availability of new facilities, faculty initiative, and consideration of students' interests. On the whole, the dev in UNC's PE activities prog evolved along with prog around the country for the yrs studied.

386. CHASE, L.A. Blood lactate responses for three competitive swimming strokes. M.A. in Physical Education, 1988, (R. MacMurray)

The relationship between blood lactate response and VO_2 during performance of breaststroke, backstroke and butterfly in 6 coll swimmers. Ss performed 3 swim trials on 4 separate days at 70%, 80%, 90% and 100% of max effort. At the completion of each bout, HR was recorded, blood was drawn for lactate anal and 3 consecutive 20 sec samples of expired air was collected. Exercise VO_2 was calculated by backward extrapolation to time zero. Anal showed sig diff between intensities in each of the 3 variables ($p < .05$). No stroke specific diff was found ($p < .05$). These data hold valuable information for swim coaches and swimmers. Knowledge that lactate responds to intensity, independent of stroke may enhance the use/application of lactate measures in swim training.

387. CODY, S.M. The effects of the strength shoe on vertical jump performance in male collegiate basketball players. M.A. in Physical Education, 1989, (W. Prentice)

The purpose of this study was to determine if max vertical jump performance of M coll JV BB players attending the Univ of NC at Chapel Hill was sig changed through the use of an ergogenic training device, namely The Strength Shoe. The sample included 10 M JV BB players and 2 M grad students. 6 Ss were randomly assigned to the exp gp and 5 to the control gp. All participated in a 4 wk training regimen with Ss in the exp gp having worn the Strength Shoes during the training sessions, while the controls wore their own BB shoes. A vertical jump pre-test was admin prior to training and a post-test following the training to determine the effects of the Strength Shoe on max vertical jump performance. A 2x2 ANOVA with repeated meas on the last factor indicated no statistically sig diff in max vertical jump performance between the Ss who trained in the Strength Shoe and those who trained in conventional high top BB shoes.

388. FINCH, L.M. An assessment of the factor validity of the precompetititve stress inventory. M.A. in Physical Education, 1988. (J. Silva)

The purpose of this study was to continue establishing the factor structure of the Precompetitive Stress Inventory (PSI), a 104 item questionnaire designed to assess sources of precompetitive stress. Previous research with youth participants has resulted in the establishment of initial psychometriic properties for the PSI and the inventory has since been refined. 68 coll athletes served as Ss. Ss indicated the frequency with which certain stressors occurred during the precompetitive period and the impact the stressors had upon their performance. Sibling rivalry, guilt and bad luck were low infrequency. Performance achievement stressors were high in frequency and were perceived as eustressful to the athletes. Self doubt stressors were rated as the most distressful. Orthogonal and oblique factor anal yielded a factor solution which accounted for 79.86% of the variance. The following factors were inter-pretable: worry/rejection, team cohesion/ support, performance achievement, guilt, coach/player interaction, material rewards, sibling rivalry, parental involvement, bad luck, team preparation and fear of failure.

389. GIAMBELLUCA, C. Reducing anterior shear during knee extension: Effect of resistance pad location. M.A. in Physical Education, 1988 (P. Robinson)

The purpose of this study was to investigate the effect of varying resistance pad position on strain in the anterior cruciate ligament during knee extension. 2 fresh human lower limbs from cadavers were tested. A mercury strain gauge was sutured to the ligament. Meas were recorded during simulated extension effort with a 10 lb WT attached to the resistor arm of an N-K table. 4 resistance pad positions, proximal to distal, were tested. A factorial ANOVA revealed that the meas strain was sig lower for the more proximal positions, ($p < 0.05$). The strain data suggest that a more proximal placement of the resistance pad will reduce the net anterior shear force created during knee extension. However, a sig strain was observed from about 50^o to full extension regardless of pad placement, suggesting this range should be avoided during the early to middle stages of ligament healing.

390. GUNNELLS, L.J. A history of women's intercollegiate athletics at the University of North Carolina at Chapel Hill from 1971-1987. M.A. in Physical Education, 1988 (A. Lumpkin)

This thesis traced the dev of the women's intercoll athletic teams at the univ of NC at Chapel Hill (UNC) from 1971 through 1987. Data were collected from annual reports of the Dept of PE, annual reports and financial reports of the Athletic Dept, Sports Information Office files, personal interviews, and univ newspapers and yearbooks. During the Pre-AIAW yrs UNC followed the national patterns of sports participation, such as play days, sports days, intramurals, extramurals, and club sports. In examining the women's teams during the AIAW yrs and the NCAA yrs, issues explored included coaches' salaries, facilities/equipment, budgets, scholarships, and publicity and promotions. UNC's prog for women's athletics dev gradually from the initial 7 sports to a 13-sport prog. Major changes in the women's prog included facilities, scholarships, and admin structure. A few areas that needed improvement during the 1971-1987 yrs included budget allotments and salaries.

391. HANSEN, J.W. *Effective methods of athletic fund raising used by NCAA Division I-A institutions*. M.A. in Physical Education, 1988 (F. Mueller)

The purpose of this study was to determine the effective methods of intercoll athletic fund-raising currently being used by NCAA Division I-A institutions. Of the 105 Division I-A institutions given an opportunity to participate in the study, 81 (77.1%) returned the questionnaire. Results indicate that the 5 most effective methods are Membership Organizations, Annual Fund-raising Campaigns, Golf Tournaments, Trade-out Agreements, and Matching Gifts. The 5 most effective annual or 1 time fund-raising events are Golf Tournaments, Membership Organizations, Auctions, Annual Fund-raising Campaigns, and Dinners, Barbecues, etc. 26% of the schools raise an ave of between 1 million and 1.99 million dollars. Institutions which have an athletic fund-raising director raise an ave of between 1 million and 2.99 million dollars as opposed to an ave of between 500,000 and 1.99 million dollars raised by those schools not having the full-time position.

392. HELMLY, R.C. *Utilization of visual cues by skilled and unskilled basketball players*. M.A. in Physical Education, 1989 (F. Pleasants)

Advanced visual cue usage in 1 on 1 basketball was studied using an occluded film technique. Skilled and novice Ss viewed a series of randomly presented occluded film sequences of a pt guard performing 5 different 1 on 1 basketball moves. Their task was to determine which of the 5 moves was being performed. The results showed: (1) the skilled players were able to utilize more advanced visual cues than the novice Ss; (2) the skilled players were better able to utilize advanced visual cues during shorter viewing times than their novice counterparts; (3) the most utilized visual cues occurred between the time the ball came off the floor and touched the extended hand of the dribbler during the last dribble prior to the move and the time the basketball had moved 2 basketball widths away from the midline of the guard's body towards its final destination; and (4) that ball flight is not needed to accurately determine a 1 on 1 move. The specific advanced visual cues available and/or utilized were also identified.

393. KELLY, A.J. A comparative analysis of male and female soccer teams coming from behind to win. M.A. in Physical Education, 1988 (E. Shields)

The purpose of this investigation was to determine if M soccer teams come from behind to win and to win or tie more often than F soccer teams. Being behind is operationally defined as trailing at half-time. Data was collected from 560 M HS games and 439 F HS games. The % of times a team came from behind to gain a pos result was calculated for each gender. M and F teams were compared in the frequency of coming from behind to gain a pos result by using a Z-test. M teams came from behind to win and win or tie from a 1 goal deficit sig more often than F teams ($p > .05$). These results were discussed according to psychological gender diff and the degree to which the team was trailing.

394. KIRSANOFF, M.T. Life stress and social support as predictors of athletic injury. M.A. in Physical Education, 1987 (C. Hardy)

The purpose of this study was to determine if life stress and social support are predictive of athletic injury. The Athletic Life Exp Survey (Passer & Seese, 1983) and a Social Support Functions Scale (Pines, Aronson & Kafry, 1981) were admin to 170, M and F, varsity athletes. The sample included athletes from 7 sports: volleyball, gymnastics, field-hockey, soccer, cross-country, track, and wrestling. Injured athletes were found to have sig higher Total Life Change (p=.0044) and Neg Life Change (p=.0032). No sig diff were noted on the social support variables between injured and non-injured athletes. A Stepwise Multiple Regression anal using frequency and severity as criterion variables and Total Life Change and Social Support Functions as predictors evidenced a sig equation for frequency, ($p=.001$, $R=.401$, $R^2=16.06\%$). Similar results were found when employing the partitioned life stress scores and social support functions ($p=.0001$, $R=.414$, $R^2=17.11\%$). Interpretation of the regression anal indicated that increased frequency was sig related to higher Total Life Change and Neg Life Change, higher quality of Technical Support and quantity of Sharing Social Reality. A lower frequency of injury was sig related to higher qualities of Emotional Support and Emotional Challenge. There were no sig results on predicting severity of injury. The results of this study suggest that the frequency of injury is predictable on the basis of life stress. They also suggest that the quality of emotion social support functions "buffers" the influence of life stress.

395. KOSMA, M. A comparison on the present sports participation levels of the international students and American students enrolled at the University of North Carolina at Chapel Hill. M.A. in Physical Education, 1988 (A. Lumpkin)

The purpose of this study was 2-fold: first, to examine the present sports participation of the international students and American students, second, to determine the reasons why these students chose not to participate in sportive activities at the Univ of NC at Chapel Hill. The questionnaire dev for this study was sent to 60 international students and 60 American students enrolled at UNC-CH during the spring semester, 1987. There were 109 question-naires returned on which the statistical anal were conducted. The results indicated no sig diff between sports participation levels of international and American students. However, international F students demonstrated sig less participation than international M students and international grad students demonstrated sig less participation than international undergrad (P = .05). Acd work was seen as the most frequent reason for not participating in sports for both gps.

396. LAUDERMILK, J.I. Catastrophic injuries in junior high and high school wrestling: a five-season study. M.A. in Physical Education, 1988 (F. Mueller)

The purpose of this study was to examine catastrophic injuries in JHS and HS scholastic wrestling prog over a 5 season period. 4 classes of injuries were examined including serious, non-fatal, direct fatal, and indirect fatal. The surrounding events were documented including the body region of injury, activity at the time of injury, the wrestler's status within the match, and whether it occurred in practice or competition. Results indicated that the greatest number of direct catastrophic injuries were to the vertebral column and spinal cord. The highest risk time was in competition, and the highest risk move was the takedown.

397. MANNING, M.M. Pragmatic and administrative factors related to a successful wrestling program. M.A. in Physical Education, 1986 (F. Mueller)

This study attempted to identify why the top 20 wrestling teams were successful from the 1982-86 seasons. Each of these prog were sent a questionnaire regarding their coaching effectiveness, admin support, and the quality of their wrestling camps. 19 of the 20 teams completed and returned the questionnaires. The data was statistically anal.

The results indicate that the top 20 wrestling teams do possess certain characteristics which enable their prog to remain in the top 20. The study revealed 3 variables that were sig in predicting a team's national finish. The variables were the number of All-Americans each team produced during the 1982-86 seasons, the size of each prog recruiting budget, and the number of 1 wk wrestling camps. This study was successful in determining factors that enable top prog to have an advantage over other wrestling teams. Certain results evolving from this study could explain why some prog finish high nationally each yr. With additional insight into the success of the top 20 wrestling prog more teams can benefit from the results of this study.

398. MCDONALD, S.A. Psychological affect of the injured athlete. M.A. in Physical Education, 1988 (C. Hardy)

The purpose of this study was to determine a common emotional response pattern exhibited by severely injured athletes and to place these reactants into stages. 5 univ athletes were followed within 24 hr of injury for 4 wks. They were admin the Profile of Mood States at each meeting and asked to indicate his/her perceived % rehabilitation. Aggregate anal revealed a pattern of very intense neg emotions within the first wk of injury, a leveling off to "normal" emotions, to finally an Iceberg Profile. Statistical anal indicated that there were sig diff between time periods for % perceived rehabilitation, Total Mood Disturbance, Depression, Anger, Vigor and Confusion. For these, relationships were found with time in the expected direction. Results of this study propose a 2-stage theory in the recovery of a severely injured athlete termed the "neg affective stage" and the "adaptive stage".

399. MEADER, K.E. The bodyball: The physiological effects observed in aerobic dance training.

M.A. in Physical Education, 1988 (J. Billing) The purpose of this study was to determine the effectiveness of the Bodyball on cardiorespiratory endurance, muscular strength, and muscular endurance when used in conjunction with an aerobic dance training prog. 22 gps of 15 coll-aged F, trained 3 x wk for 10 wk in an aerobic dance prog. Both training prog were identical except for the addition of the Bodyball in the exp gp. Pre- and post-testing included VO_2 max testing using arm ergometry and Cybex isokinetic testing. 2 separate multivariate anal MANOVA were performed for cardiorespiratory data and Cybex data, with repeated meas on trials. Statistical anal failed to reveal any sig diff between gps as a result of the Bodyball treatment in either cardiorespiratory endurance muscular strength, or muscular endurance. However, both gps displayed an overall sig improvement in cardiorespiratory endurance, as indicated by submax HR, VO_2 max, and exercise time to exhaustion. Results indicate that the addition of the Bodyball in aerobic dance fails to provide cardiorespiratory benefits over and above the benefits achieved in regular aerobic dance training, nor does it enhance levels of muscular strength or endurance.

400. NEVOLE, G.J. Visual cue utilization in skilled softball players. M.A. in Physical Education, 1988 (F. Pleasants)

An occluded film technique was used to study advanced visual cue usage in skilled fast-pitch softball batters. Choice RT and dynamic visual acuity tests were used to establish baseline meas of physical ability. In the occluded film test, the Ss viewed a series of film segments of a windmill style softball pitch, their task was to determine the terminal location of the pitched ball. The results indicated that 1) there was no diff in dynamic visual acuity between the 2 gps, 2) the skilled batters had a faster m choice RT as compared to novice batters, 3) with outlier scores deleted, the skilled batters were more accurate in determining the terminal location of a pitch and, 4) 100 msec after pitch release was determined to be the time when advanced visual cues are most effectively detected and utilized. This suggests that the skilled batters are probably more efficient in using their anticipatory scheme in determining and utilizing advanced visual cues when predicting pitch location.

401. NORTON, C. Attitudes of athletes and non-athletes toward drug screening at the University of North Carolina. M.A. in Physical Education, 1989 (W.E. Prentice)

The purpose of this study was to meas attitudes of athletes and non-athletes toward drug screening at the Univ of NC. 66 athletes, representing each varsity team, and 100 non-athletes were randomly selected and surveyed using a 40 question Likert based survey. An independent T-test was run to compare m scores of the surveyed population. The T-test revealed no sig diff among attitudes. The following conclusions may be drawn about the gps: 1) athletes do not demonstrate a sig diff in attitudes toward drug screening than non-athletes at the Univ of NC; 2) athletes and non-athletes tend to agree with the drug screening prog at the Univ of NC; 3) athletes and non-athletes tend to agree with moderate sanctions and counseling for athletes testing pos for drug use; and 4) athletes and non-athletes agree that drug screening should be done for performance and rec drug use.

402. PEIN, W.E. The change in Oxygen consumption over time in downhill versus level grade running. M.A. in Physical Education, 1989 (J. Billing)

To compare the change in VO_2 over time in level vs downhill (-10% grade) running, 16 Ss ran at either each treadmill condition. M VO_2 was 74.2%±6.87 and 52.4%±6.05 of m VO_2 max (55.21 ml/kg x min) for the level and downhill runs, respectively. M VO_2 increased ($p < .01$) 1.82 ml/kg x min or 4.58% from min 10 to min 40 for the level run and 2.29 ml/kg x min or 8.10% for the downhill run. The downhill run increase was greater ($p < .01$) than the level run increase when expressed as a % increase with respect to baseline min 10 VO_2. These results suggest that a greater progressively increasing VO_2 is need to sustain constant speed downhill running than is needed for similar level grade running.

403. RUCINSKI, T.J. *The effects of intermittent compression on edema in post-acute ankle sprains*. M.A. in Physical Education, 1989 (W.E. Prentice)

The purpose of this study was to compare the effects of 2 therapeutic compression devices (The Jobst Intermittent Compression Device and the elastic wrap) to an elevated control gp on the amt of edema in post-acute ankle sprains. The amt of edema present in the ankles was determined by volumetric water displacement meas taken before and after the admin of the treatment. 30 Ss with unilateral ankle sprains exhibiting some degree of pitting edema, were randomly assigned to the 3 treatment gps. A sig interaction effect was found ($p < .0006$), and further diff of the pre- to post-meas m found the elevated control gp to be sig superior to the compression treatments ($p < .01$) with a m decrease of 14.9 ml. The Jobst Device and the elastic wrap had non sig m increases of 7.4 and 3.7 ml respectively. Therefore, it is recommended that elevation alone be used if the primary objective is to reduce edema in the post-acute phase of ankle rehabilitation.

404. SHARAR, B.D. *An analysis of swimming economy as assessed by a comparison between VO_2 values*

and arm stroke index. M.A. in Physical Education, 1989 (R. MacMurray)

The Arm Stroke Index (ASI) and VO_2 values for 3 M and 3 F swimmers were evaluated at a slow, medium, fast and max pace for the butterfly, backstroke and breaststroke to determine if a sig relationship exists. A 3 x 4 repeated meas ANOVA on the individuals' regression equation was employed. Results indicate a sig relationship between ASI and VO_2 when controlling for S and stroke ($p < 0.022$). Conclusions from this testing suggest that as ASI increases (i.e. lowers economy), VO_2 increases as well. This data may be used as a tool to chart the continual economical progress of individual swimmers over an extended period of time.

405. STONE, R.A. A comparison among the track and grab starts in swimming and a stand-up response task. M.A. in Physical Education, 1988 (F. Pleasants)

26 M competitive swimmers on the Univ of NC at Chapel Hill men's swimming team served as Ss for this study. Each swimmer was assigned either to a grab start gp or to a track start gp using a stratified random assignment from 3 categories: sprinters, middle-distance, and distance. Each swimmer practiced his respective start 6 x per day for 11 days. At the conclusion of the practice period each swimmer was filmed, performing his assigned start for 3 trials. 16-mm film and video data were used to select each swimmer's fastest start. Results demonstrated sig pos r between predicted 50-yd freestyle time and the S Ht, as well as water start velocity to the second stroke ($p <.05$). The track start had sig shorter block time, time to enter the water, time to the first or second stroke, and water start time to the first or second stroke ($p < .05$). The grab start had a sig greater horizontal flight distance, and total distance to the first or second stroke ($p < .05$).

On the basis of the performance for the track start gp, the track start may offer an alternative faster starting technique.

406. SZCZODROWSKI, D.F. A comparative study on the effectiveness of preventive knee braces. M.A. in Physical Education, 1988 (W.E. Prentice)

The purpose of this study was to determine the effectiveness of preventive knee braces in reducing the frequency and/or severity of knee injuries to football players and to determine specific variables which contribute to sustaining a knee injury. The data were collected during a 3 yr period beginning in 1981. Injury questionnaires were sent to the Head Athletic Trainers of 12 Division I institutions and the data obtained was anal using the x^2 technique. Sig results ($p \leq 0.05$) supported the following conclusions: the use of preventive knee braces does not reduce the frequency or severity of medial collateral, anterior cruciate, and medial meniscus injuries; running backs, defensive backs, and linemen sustain a greater frequency of knee injuries; and there are more anterior cruciate ligament injuries occurring on artificial surfaces than natural surfaces.

407. WERNER-FERREL, S.D. A comparison of the ratio of shoulder concentric internal rotation to eccentric external rotation of male swimmers vs. non-swimmers. M.A. in Physical Education, 1989 (W.E. Prentice)

The present study used an isokinetic device called the KIN/COM to meas the torque values of concentric internal rotation and eccentric external rotation of the shoulder. The study attempted to replicate the swim stroke by meas these motions with the arm abducted 90^o, the elbow flexed 90^o and a starting position of full external rotation. The Ss bilaterally performed each motion, the peak torque value was recorded. The peak torque of eccentric external rotation was divided by peak torque of concentric internal rotation to form a ratio for each S. The largest ratio found from bilateral comparison was used. Results showed that the swimmers ratios were less than the non-swimmers indicating concentric internal rotation was stronger. Results also indicate that the swimmer gp produced sig higher torque values than the non-swimmer gp both eccentrically and concentrically. Eccentric external rotation torque values were greater than concentric internal rotation torque values for both gps.

408. WYDAN, M.E. An assessment of the possessed qualifications and important qualifications of aquatic administrators. M.A. in Physical Education, 1989 (F. Mueller)

The purpose of this study was to determine the qualifications of aquatic admin in coll or univ settings and to identify those qualifications necessary to effectively admin their respective aquatic prog. Sig diff between possessed and important qualifications signified areas needing additional emphasis in the educ curr to adequately prepare aquatic admin. The 7 aspects of qualification investigated were 1) educ background, 20 certifications, 3) admin exp, 4) teaching/coaching exp, 5) aquatic participation, 6) related educ course-work, and 7) professional involvement. Aquatic admin were well prepared in the aspects of teaching/coaching exp, aquatic participation and professional involvement. Deficient preparation was found in certification and admin exp categories; specifically first aid certification, course-work in legal liability, pool maintenance/operations and on the job training from a supervisor. Suggestions for preparation were a Bachelors Degree, lifesaving and water safety instructor certifications, cardio-pulmonary resuscitation and attendance at a professional clinic once a year.

409. YENNEY, C.M. North Carolina amateur sports and the United States Olympic Festival-1987. M.A. in Physical Education, 1988 (A. Lumpkin)

NC Amateur Sports hosted the US Olympic Festival between the dates of July 13, 1987, and July 26, 1987. This study focuses on the following 3 areas, dev, marketing and promotions, and volunteer recruiting and coordinating. The study presents information on the growth of the US Olympic Festival from it inception in 1978, on the growth of NC Amateur Sports and its quest for the festival, and on the organization and operations of other amateur athletic organizations at the international, national, and state level and their effect on NC Amateur Sports. The study concludes that more money, personnel, and time are needed in the 3 areas studied in order to benefit the US Olympic Festival to the greatest degree. The study also concludes that the methods used in dev and marketing and promotions were responsible for much of the success of USOF-'87. Volunteer recruiting and coordinating also benefitted USOF-'87 a great deal, but this is an area that need much more work. The study concludes that the US Olympic Festival is an event that needs to be studied further in order that it becomes better.

UNIVERSITY OF NORTH CAROLINA (J. Harris)
GREENSBORO, NORTH CAROLINA

410. DARRAGH, P.M. The relationship of fat patterning to peripheral resistance following supine submaximal exercise. M.S., 1988, 96 p. (D.L. Spitler)

The purpose of this study was to examine the relationship of fat distribution patterns on peripheral resistance response to recovery from submax exercise. 31 healthy and active M and F volunteers (M age 25.9 ± 5.1 yr) completed 2 test sessions. The first test session included anthropometric meas to calculate fat pattern ratios, and a graded progressive cycle ergometer test to voluntary max exertion in the supine position. Central Fat Patterning (CFP 1, CFP 2) and Peripheral Fat Pattern (PFP) was calculated from skinfold and circumference meas. The second test session was a 20 min submax exercise ride in the supine position at 60 - 65% of VO_2max. HR and SV were meas by impedance cardiography for 15 min of recovery. Q and peripheral resistance were then calculated. The non-invasive, non-manipulative meas of Q by impedance cardiography was considered adequate to evaluate central circulatory responses following exercise. Central Fat Pattern ratios of both the M (1.15 ± .36) and the F (.91 ± .25) were higher than the Peripheral Fat Pattern ratios (M = .69 ± .25, F = .54 ± .04). All Ss exhibited normal central and peripheral CV stress responses post exercise. There were no sig r between the CFP 1 or CFP 2 and peripheral resistance. Moderate sig r were evident between central fat patterns and other S physical characteristics. The peripheral fat pattern had a low sig inverse r to arm peripheral resistance recovery (r = -.34). These low r alone are not strong indicators of CV responses post exercise. They did, however support the exploratory nature of the study and the potential of fat patterns as a tool to evaluate the effect of chronic obesity on the CV system.

411. JEFFREYS, A.T. Experiences and relations in the work of women teacher/coaches: a critical inquiry. Ed.D., 1989, 208 p. (S.M. Robinson)

The purpose of this study was to gain insights into the social realities of HS F teacher/coaches by interpreting and re-interpreting the chronological and Expressive Autobiographical interviews (EAI) of 4 participants. The EAI and the guided interview methods were used to elicit cultural knowledge, beliefs, and attitudes about women and sport. Two constructs, exp and relationships, served as the mediators for entering into the dialectical conversations with these women. The socialist feminist perspective informed the study. The present study proceeded from a historical materialist standpoint of women, and was based on the theory and method of dialectical phenomenology. A series of interviews were conducted, and the data were juxtaposed with the feminist literature to illuminate the underlying feminist consciousness of these women. Once the social and political nature of their position was established, the data were interpreted and reinterpreted in search of the essential themes. The two constructs, exp and relationships, were found to have richness and depth in revealing 3 essential themes: agency and communal living, maternal thinking and the epistemological dev of women. As a central core of women's being, the voices of the participants revealed congruence with the relevant lit in that the issue of power, and how it is used was also an important construct.

412. KOEHLER, K.M. Development and validation of a questionnaire for assessing habitual physical activity of sixth-grade students. Ed.D, 1988, 120 p. (R. McGee)

The purpose of this investigation was to develop and validate a questionnaire designed to assess habitual physical activity of sixth-grade children. Two preliminary surveys involving 104 sixth-graders were used to determine the content and format of the questionnaire. A pilot study (n = 72) was also conducted to check the admin ease and reliability of the instrument. Finally, a sample of 235 sixth-grade students completed the Physical Activity Questionnaire (PAQ), the AAHPERD Health-Related Physical Fitness Test, and the revised Children's Attitude toward Physical Activity Inventory (CATPA). Two validation techniques were used to investigate the construct validity of the PAQ, including convergent validity and the gp diff method. Pearson Product-Moment r were used to determine convergent validity, examining the relationships between the PAQ and health-related fitness and attitude toward physical activity. Independent t-tests were used to determine gp diff for high and low activity gps on health-related fitness and attitude toward physical activity. Results indicated that the PAQ had weak, but sig evidence of convergent validity. Sig r ranging from .11 (p < .05) to .44 (p < .001) were observed between the PAQ and the 4-item fitness test. Low, but sig r were also observed between the PAQ and CATPA Inventory, ranging from .11 (p < .05) to .37 (p < .001). No sig diff were observed between high and low activity gps on attitude. Activity gps were sig diff (p < .05) on sit-ups, but similar on all other fitness meas. Acceptable test-retest reliability was obtained for the PAQ (r = .87). It was concluded that the PAQ had evidence of content validity, weak but sig evidence of convergent validity, and unacceptable construct validity using the gp diff method. Reliability of the PAQ was acceptable.

413. ROVEGNO, I.C. The substance and development of preservice teachers' knowledge during a field-based Elementary Physical Education methods course. Ph.D., 1989, 220 p. (K.R. Barrett)

The purpose of this study was to describe and anal what and how 7 preservice teachers learned during a field-based methods course. 2 questions guided the research: (a) what was the substance of salient knowledge components of preservice teachers during a field-based ELE PE methods course? and (b) how did these knowledge components dev? A cognitive/dev perspective informed this study. Knowledge dev was viewed as growth toward increased diff and integration. Changes in knowledge structures were assumed to involve accretion, tuning, or restructuring with knowledge change resulting from the interaction of prior knowledge and current exp.

Research methodology followed guidelines of the interpretive research paradigm. All class meetings and field exp were observed, interviews were conducted, and documents collected. Data anal was inductive with themes derived from the data. Theme one focused on the growth toward or a need for a fine-grained, integrated, contextual way of knowing. Knowledge components became more detailed, diff, and action-oriented. The preservice teachers began to make sense of content, children, learning, dev, and teaching in more integrated ways. For several students these changes seemed to be dev milestones. Theme 2 focused on knowledge restructuring that moved toward increased diff and integration with the environment. Some cases of restructuring seemed to be distinct changes, almost reversals, in perspective; others were more of a consolidation of knowledge. The direction of dev went from self to child, passive to active, detached to involved, separate to interactive. Theme 3 was individual diff. Profiles of 3 students illustrated how diff orientations toward learning influenced what and how they learned.

414. SANDERS, G.E. The assessment of dance movement satisfaction of elementary age children participating in a creative dance instructional program. Ed.D., 1988, 104 p. (T. Martinek)

The purpose of this study was to develop a dance mvmt satisfaction scale to meas the effect of a creative dance prog on dance satisfaction in second and fourth grade students. 2 phases were established; the first was to assess the validity and reliability of the scale, and the second was to determine treatment effects of the creative dance prog for second and fourth grade Ss. An initial pool of 103 items was dev using various sources from ELE PE and creative dance lit, and several items from the investigator's own dance exp. The items represented 4 content areas of creative dance; music/self-accompaniment, mvmt or dynamic qualities, locomotor/nonlocomotor mvmt, and choreography. A panel of judges reviewed the scales 103 items, and a total of 33 items were removed from the scale. The 70 items that remained were then used in the preliminary study to assess the reliability of the scale. s = 108. Reliability was assessed through test-retest and item anal. The test-retest yielded a stability coefficient of .85. The item analysis provided point bi-serial r to determine to what degree each item meas overall satisfaction along with the Cronbach Alpha index of the scale's internal consistency. Items that had r below .40 were dropped from the scale. A total of 15 items were removed which left 55 items remaining in the final dance mvmt satisfaction scale. The Alpha coefficient for internal consistency was .95. The purpose of Phase 2 was to determine the capabilities of the dance mvmt satisfaction scale to assess various levels of satisfaction in ELE age children. There were 147 second and fourth grade Ss that participated in this phase of the study. Ss were randomly assigned to 2 conditions: the creative dance prog (treatment) or a games unit (control). For 6 consecutive wk one class of second grade students and one class of fourth grade students received the creative dance prog. Two other classes of second and fourth grade Ss were given the games unit. The findings from the statistical anal showed that the treatment gps had sig higher satisfaction scores ($p < .01$) than the control gp. There was no sig diff found between genders, no sig diff was found between grades, and there were no sig interaction effects among the variables tested.

415. SELBY, M.J. A comprehensive review of Sport Psychology doctoral dissertations completed between 1966 and 1985. Ed.D., 1988, 151 p. (P. Berlin)

The purpose of this secondary research review was to examine specific characteristics of sport psych doctoral dissertations produced in grad prog in the US between 1966 and 1985. Content anal research was employed to investigate the following: (a) psych construct addressed, (b) age, gender and gp affiliation of the Ss, (c) sport and/or physical activity associated with the research, (d) instrumentation used, and (f) research strategy employed. 680 dissertation abstracts classified as "social-psych" studies were examined initially. Thereafter, dissertations addressing only socio-logical constructs were eliminated from further study. Coding categories were then established for each characteristic. Following pilot coding, data were collected. 1-way frequency distributions and crosstabulations were applied to the data. Major findings were: (1) Most studied constructs were personality and motivation; (2) Most frequently studied Ss were M aged 19-23 and young adults aged 24-40; students and athletes accounted for the majority of gp affiliations studied; (3) Team sports, individual sports, and motor tasks were the most represented sports/physical activities; (4) Most utilized research strategies were descriptive and quasi-exp; (5) Most used psych instruments were Cattell's 16 Factor Personality Questionnaire and Speilberger's State-Trait Anxiety Scale; most used performance meas was "game stats". The fragmented and diffused picture of doctoral dissertation research found by this review suggested a need for more coordinated and comprehensive studies. Also, reconsideration of the purpose(s) of the dissertation was proposed.

UNIVERSITY OF NORTHERN COLORADO (C. Chamberlin)
GREELEY, COLORADO

416. AICINENA, S.J. An analysis and comparison of teacher and student behaviors in physical education and athletic settings. Ed.D. in Physical Education, 1988, 122 p. (J. Steffan)

There were 2 purposes to this study. The first purpose was to determine if the behaviors comprising teacher instruction and composite teacher management time diff when individuals serve as PE teachers and coaches. The second purpose was to determine if the behaviors comprising student participation time and composite student management time diff for students and athletes. The Ss participating in this study were 28 PE teachers who also coached varsity BB teams. Data were also gathered upon the Ss' students and athletes who were diff individuals. The schools were located in Northeastern CO and Southeastern WY. Teaching, coaching, student and athlete behaviors were collected using the PE Teacher Assessment Instrument (PETAI). The PETAI was used to collect a continuous record of 10 teaching and coaching behaviors and 18 student and athlete behaviors. 1 class and 1 practice session was videotaped for each S, their students and athletes. Classes were filmed in the first one third of a new indoor team sport unit. Light pre-game and Fri practices were not filmed. All video-taping was completed during the competitive season. Selected teacher and coach behaviors were anal using the Repeated Meas MANOVA Procedure. Selected student and athlete behaviors were anal using the MANOVA Procedure. The Ss were found to engage in planned presentation when teaching for a sig great-er percentage of time than when coaching. The Ss when coaching were found to provide response presentation, performance fb and motivational fb sig more frequently than when teaching. Students were observed to engage in the behaviors warm up and review, and non-engaged game playing time for a sig greater percentage of time than athletes. Athletes were involved in engaged skill learning time for a sig greater percentage of time than students. No sig diff were found for the Ss in the behaviors of monitoring and management in the teaching and coaching settings. No sig diff were found between students and athletes in the behaviors of non-engaged skill learning time, engaged game playing time, and management.

417. CARPENTER, J.K. The effects of competitive and cooperative learning environments on student achievement and attitudes in college fencing classes. Ed.D. in Physical Education, 1986, 174 p. (M. Behling)

The purpose of this study was to compare the effects of competitively and cooperatively structured learning environments on achievement of basic fencing skills of coll students. A second purpose was to compare the effects of competitively and cooperatively structured learning environments on attitudes of coll students in fencing classes toward the instructor, peers, competition, and cooperation. Ss were 80 coll students (76% M) randomly assigned to treatment gps structured either competitively or cooperatively. Beginning fencing students only were utilized to equate for performance abilities between conditions. Basic fencing skills were taught to each condition for 20 sessions of 60 min each. Skill progress checks were conducted beginning the fourth wk to monitor gp progress for the cooperative condition and individual progress for the competitive condition. Students' achievement skills were meas for general fencing ability, foil accuracy, and RT. Attitude assessments were meas for attitudes toward the instructor, peers, competition, and cooperation. A t-test for independent samples was used for data anal. No sig diff was found to exist between students' performance scores for selected fencing skills in the competitive versus the cooperative learning environments. Anal of the data for students' attitudes toward the instructor found no sig diff between conditions. Results showed a sig diff existed between students in cooperative and competitive learning environments and their attitudes toward peers with students in the cooperative condition more pos in their attitudes regarding peers.

A sig diff was found in students' attitudes toward cooperative goal structures with cooperative students more pos in their attitudes toward cooperation. Students in the competitive environment were found to be more pos in their attitudes toward competition. These results showed students in the competitive and cooperative condition preferring their own learning environments.

418. DOCHEFF, D.M. A study comparing the teaching effectiveness of high school basketball coaches and success rate. Ed.D. in Physical Education, 1987, 131 p. (D. Phillips)

The purpose of this study was to anal the relationships between specific "on court" behaviors of BB coaches and athletes, the success rate of athletes meas by wins and losses, athletes' learning time, and evaluations of coaches by admin and athletes. The Ss of this study included 21 HS BB coaches and 4 athletes from each of the coaches' teams. The instruments used in the study were the PE Teaching Assessment Instrument (PETAI) and the Coaches Evaluation Instrument (CEI). Portions of the PETAI were used to meas specific behaviors by coaches and athletes. The CEI was admin to athletes and admin of BB coaches involved in the study. No restraints or guidelines relative to style of coaching were imposed. The behaviors of the coaches and athletes were observed from videotapes of their practice sessions. The data were anal using Pearson product-moment r and stepwise regression procedures. It was found the behaviors known to be effective in classroom teaching are contributors to coaching effectiveness. Three hypotheses of this study were accepted. It was found that coaches' knowledge of content relative to the game of BB was pos related to athletic achievement meas by wins and losses. A neg relationship was found between athletes' total management time and athletic achievement meas by wins and losses. Finally, a meaningful pos relationship was found between coaches' knowledge of content and athletes' total learning time.

419. HARDWICK, S.J. The effects of ball color and cup liner color on putting performance across three different ability levels of men and women golfers with established handicaps. Ed.D. in Physical Education, 1987, 140 p. (M. Behling)

The purpose of this study was to determine the effects of ball color (white, optic orange, and optic yellow) and cup liner color (white, optic orange, and optic yellow) on putting performance across 3 diff ability levels of M and F golfers with established 18-hole handicaps. The independent variables were gender, ball color, and target color. The DV was success meas by the no. of putts that actually went in the cup, and the no. of inches from the cup of missed putts. Ss were 54 M and 54 F golfers from Pinehurst Country Club in Denver, CO. Ss were restricted to those with no color perception impairment of other physical disability and had amateur status. No constraints were imposed with regard to putter style, type of grip, or stroke preference. Each S had 2 trials at the 3 ft, 9 ft, and 15 ft distance, on both a flat and contour surface, with every combination of 3 ball colors and 3 target colors. This resulted in 36 possible conditions which included every combination of ball color and target color at each distance, on both surfaces, across each skill level for both DVs. Each S attempted 108 putts. A 3 factor ANOVA with repeated observations on the last 2 factors, that is, ball color and target color, was used to anal the data. The .05 level of sig was used for testing the research hypotheses. The results of this study suggested that ball and target color did not influence the putting accuracy of M and F golfers with established handicaps. Of the 36 conditions, sig gender diff occurred 4 times. Skill level 1 M performed better than F on the flat surface at the 9 ft and 15 ft distance. Skill level 3 F performed better than M on both the flat surface and contour surface from the 9 ft distance. Ball color white was statistically sig twice, and target color was never statistically sig. The few times sig diff were found, they did not occur often enough to indicate that color would routinely affect putting performance.

420. JERNBERG, B.L. Effects of acute bouts of exercise on growth hormone secretion in females. Ed.D. in Physical Education, 1986, 160 p. (C. Jackson)

The purpose of this study was to investigate the effects of 20 min of moderate exercise on the growth hormone (GH) response to exercise in F, as related to phase of menstrual cycle, body composition, training state, and selected related variables. The relationship between the observed effects of exercise on plasma GH and cortisol (C), free fatty acids (FFA), glycerol (GLY), and lactate (LA) was explored. 7 healthy moderately-conditioned F from 19-23 yr of age completed two 20-min treadmill runs at 70% of VO_2max, one during the follicular phase (FP) and one during the luteal phase (LP) of the menstrual cycle. Ss fasted for 5 hr before exercise. Blood samples were collected by venepuncture immediately prior to and after exercise and were anal for plasma GH, GLY, C, FFA, LA, and progesterone. A progesterone level of 3 ng/ml or higher was used to confirm that Ss were in LP and could participate in the second session. Results indicated that GH levels increased with exercise and that this increase was greater during FP than during LP when pre- and post-exercise means were compared. Regression anal failed to reveal a contribution of phase of cycle, body composition, or state of training to the GH response. While sig changes were observed in the levels of GLY, FFA, and LA after exercise, no relationship was found between these changes and the diff observed in GH levels following exercise.

421. KENITZER, R.F.JR. Changes in blood lactate concentration in female collegiate competitive swimmers during end season taper. Ed.D. in Physical Education, 1988, 90 p. (C. Jackson)

15, well-conditioned F coll competitive swimmers were studied during a 4 wk end-of-season taper (EST) period in an attempt to determine if changes in blood lactate concentration occurred following a test work set. Decreases in blood lactate concentration were observed for all 3 of the training gps, sprint, mid-distance, and distance. The changes were found to be sig (p = 0.0001) between the end of the season determination and all 4 wk of the taper period. The change in lactate concentration was found to be sig between the early taper (wk 1) and the middle taper (wk 2) for the sprint gp (p = 0.0007) and the mid-distance (p = 0.0198). The changes observed between the middle taper (wk 2) and the end of the taper (wk 4) were found to be sig for all 3 gps, sprint (p = 0.009), mid-distance (p = 0.008) and distance (p = 0.03). No sig was found for the changes between the early taper (wk 1) and the end of the taper (wk 4). Performance observations at 80% effort were made for the 4 wk taper and times were seen to decrease over the first wk and a half for the sprint gp. The performance times for the mid-distance gp decreased over the first 2 wk, while the distance gps times decreased during the first 2 1/2 wk. The performance times for all 3 gps increased over the final wk and a half of the taper. The findings suggest that a taper period of 2 wk in duration may result in lower blood lactate concentration and better performance times than a longer taper of 4 wk.

422. KHORRAMI, M.R.H. A force-velocity comparison of the penetration step when executed from the square stance and the stagger stance in

wrestling. Ed.D. in Physical Education, 1989, 136 p. (J. Barham)

The purpose of the study was to make a force-velocity comparison of the penetration step when executed from the square stance and the stagger stance. 10 voluntary wrestlers form the Univ of Northern CO varsity wrestling team were selected to be the Ss of this study. All Ss were familiar with both the square stance and the stagger stance. During the actual tests, each S was asked to execute the penetration step from both stances. Each wrestler was filmed while his support foot was placed on a force platform. The horizontal forces and velocities data of all Ss from each stance were meas for anal. The time interval used in this anal began with the first surge of force applied by the support foot to the platform and ended at the moment of release of the support foot from the platform. A 1-way ANOVA was used to identify statistically sig diff among the ave impulse and ave velocity mean scores obtained from the 2 stances. The Pearson r was used to find any sig relation between the mean scores of the ave impulses and ave velocities for each stance. The results of the study determined that there was not a sig diff between the ave impulse and velocity mean scores. Thus, in terms of the ave impulses and ave velocities, no sig diff were found between the square stance and the stagger stance in wrestling. On the other hand, it was found that there is a highly proportional relation between the mean scores of the ave impulses and velocities for each stance.

423. MUELLER, L.M. Self-efficacy and motor skill performance. Ed.D. in Physical Education, 1988, 74 p. (G. Sage)

General and specific self-efficacy are characteristics of a performer which may enhance or hinder skill performance. The purpose of this study was to examine the effects of general and task-specific self-efficacy on the performance of a fine motor skill. Clarifying the relationship between self-efficacy and performance may aid in optimizing the performance of athletes. 204 students from the Coll of Human Performance and Leisure Studies at the Univ of Northern CO volunteered to participate in the study and completed the Perceived Physical Ability Scale (PPAS). Responses to the PPAS were then used to identify those who were high in general self-efficacy and those who were low in general self-efficacy. Then, using the randomize function of the Statistical Anal System, 66 volunteers were chosen as Ss, 33 from the high general self-efficacy pool, and 33 from the low general self-efficacy pool. Equal nos. of Ss form each gp were then randomly assigned to 3 treatment gps: gp #1--high manipulation, gp #2--low manipulation, gp #3--no manipulation. Ss completed a training session on the rotary pursuit instrument, a 3 trial pretest, and a manipulation session, followed by completion of a task-specific self-efficacy questionnaire and a 3 trial post-test. Task-specific self-efficacy was manipulated by providing falsified fb. Regardless of actual performance, Ss in treatment gp #1 were given high performance fb, Ss in treatment gp #2 were given low performance fb, and Ss in gp #3 were not given any fb. No sig diff was found between the performance of Ss in the low general self-efficacy gp and those in the high general self-efficacy gp. Sig diff were found between task-efficacy gp (#1) out performing those in the low manipulated self-efficacy gp (#2) who outperformed the control gp (#3). No relationship was found between general and task-specific self-efficacy. This study provided evidence that specific self-efficacy could be manipulated but that performance would not necessarily be altered in the direction of the manipulation. Fb was shown to be an important aid to performance improvement with pos fb being especially advantageous.

424. REICH, R.R. The effects of three incentive structures upon the cardiorespiratory endurance of fifth grade students. Ed.D. in Physical Education, 1989, 151 p. (C. Cody)

The purpose of this study was to investigate the relative effectiveness of cooperative, competitive, and individualistic incentive structures upon the cardiorespiratory endurance of fifth grade students. Ss were 102 fifth grade students (53% F) randomly assigned to cooperative, competitive, and individualistic treatment gps. Each gp participated in a cardiorespiratory training regimen 3 times a wk for 8 wk in an effort to improve their cardiorespiratory endurance. The incentive to improve was structured diff within each gp to determine if 1 condition was any more effective than the others in achieving the desired outcome. Cardiorespiratory endurance was meas by a 9-min distance run test. The test was admin to students as a pre-test prior to the training regimen, and immediately following as a post-test to assess levels of cardiorespiratory endurance and any improvements as a result of the exp treatment. A 2-way ANCOVA was used to anal the test data. No sig diff were found to exist between the post-test adjusted performance scores of students in the cooperative, competitive, and individualistic incentive structure gps. There was also no interaction between treatment and gender on the post-test performance scores. Based on these findings, it was concluded that the incentive structures had no sig effect upon the improvement of the cardiorespiratory endurance of the students used in this study. In the concluding remarks it was pointed out that incentive structures may have value beyond performance scores. Since cooperation is fundamental to most human endeavors, a cooperative goal structure, properly applied in an educ setting, may have implications in both the psychomotor and affective learning domains, as well as the cognitive. Recommendations were made with respect to further study of incentive structures in the area of physical fit and the role of cooperative learning in PE.

425. SHETTY, A.B. A validation of a displacement based algorithm for the calculation of leg power in a vertical jump. Ed.D. in Physical Education, 1986, 122 p. (J. Barham)

The purpose of this study was to validate a displacement based algorithm for the calculation of leg power in a vertical jump. The algorithm, which was designed to provide a performance based and inexpensive meas of leg power was $P = mg[(h_1+h_2/h_1)][gh_2/2]$ where P is power, m is mass, h_1 is vertical displacement of CG while in contact with floor, h_2 is vertical displacement of CG while S is airborne, and g is the acceleration due to gravity. 18 M coll students performed 3 vertical jumps each from the surface of a force platform. Each S attempted to jump as high as possible during each jump without using their arms. Force and time data were meas by the force platform during the support phase of each jump and this data was used for the calculation of power. 2 displacements of each S's CG during each jump were calculated, and this data was used to calculate power according to Lightsey's (1985) displacement algorithm. The 2 sets of power scores were compared using Pearson's product-movement r. The r between the 2 sets of power scores was 0.96. Thus, it was concluded that ave power calculated from force platform data is highly correlated with the ave power computed from displacement data. Based on the results of this study, it is concluded that the displacement based algorithm developed by Lightsey (1985) is valid, and it can be used to predict power scores that have been meas from force platform data.

426. STROOT, S.A. The relationship between selected teacher variables and selected feedback

variables and student engaged skill learning time. Ed.D. in Physical Education, 1987, 131 p. (D. Phillips)

The purpose of this study was to determine the relationship between selected teacher variables, selected fb variables, and student engaged skill learning time. The Ss involved in this study included 17 volunteer PE teachers in the areas of Denver, Longmont, Kersey, and Greeley, CO. Data for student engaged skill learning time were obtained from 4 randomly selected students from each class. The data were collected using 3 types of instrumentation. All teachers were admin a written test designed to meas the teachers' cognitive knowledge of the anal of the basic skills of the selected team sport. The scores obtained from these tests were used as data to represent the teacher variable knowledge of content. The instrument used to collect temporal data for the variables teacher instruction time, teacher management time, and engaged skill learning time was the PE Teacher Assessment Instrument (PETAI). The PETAI is an observation instrument designed to provide a continuous recording of temporal data throughout the class setting. The fb variables were meas with the Teacher Augmented Fb Observation Instrument (TAFOI), which was developed by the investigator as a revision of Fishman's Augmented FB Instrument. All data were obtained from videotaped recordings of actual classroom situations. The data were anal using Pearson product-moment r and multiple linear regression anal using stepwise procedures. Sig relationships were found between knowledge of content and temporal fb. Engaged skill learning time was found to relate sig to the teacher variables of total fb and management time, and to the fb variables of audi-tory, visual, tactile, terminal, temporal, spatial, sequential, pos, and individual feedback. Perhaps this relationship between fb and engaged skill learning time would provide a sig contribution to the area of teacher effectiveness in PE, and thus provide an impetus for further research. A sig relationship was also found between teacher management time and the teacher variables of total teacher instruction time and the subcategory monitoring, and the fb variables of temporal, pos and neg fb.

427. STULL, R.A. A kinematic analysis of the karate reverse punch in front stance. Ed.D. in Physical Education, 1986, 174 p. (J. Barham)

The purpose of this study was to obtain baseline kinematic data regarding the spatial and temporal organization of selected joints in the production of peak wrist velocity in the karate reverse punch in front stance. 4 highly skilled Ss in the Shotokan, Tae Kwon Do, Kung-fu, and Kempo karate styles were filmed at a speed of 100 frames per sec perpen-dicular to the sagittal plane. The Ss performed 2 techniques with the dominant punching hand: (a) reverse punch and (b) high block reverse punch combination. It was hypothesized that the reverse punch and high block/reverse punch techniques would conform to the "kinetic link principle" and "serape effect" mvmt models. It was also hypothesized that the first hypothesis would apply independent of karate style. It was concluded that highly diff striking patterns for the wrist, elbow, shoulder, hip, and knee existed in skilled Ss from the Shotokan, Tae Kwon Do, Kung-fu, and Kempo karate styles performing the reverse punch. Data in only 2 trials resembled the classical kinesiological models of the kinetic link principle and the serape effect. Due to mvmt limitations usually inherent in the reverse punch, the aforementioned models may not be wholly appropriate for anal the karate reverse punch. Karate styles and emphasis within styles such as sparring, self-defense, board breaking, or individual characteristics and perceptions may dictate very different mvmt patterns with regard to peak velocity.

428. WORRELL, G.A. Oxygen consumption of phasically stretched skeletal muscle. Ed.D. in Physical Education, 1987, 111 p. (C. Jackson)

The effect of static stretch was compared to phasic stretch in paired rectus abdomini of Rana pipiens in vitro. Phasic stretching was accomplished with a motor platform which alternatively lifted the load and then allowed the wt to re-stretch the muscle at a rate of 12 or 30 stretches per min. O_2 consumption was meas volumetrically. Static stretch with a 10 gm wt was found to sig increase O_2 consumption over slow phasic stretch or a slow phasic stretch period followed by a later period of fast phasic stretch. Cross-over treatments where each muscle was alternately stretched, with a 20 gm wt, both statically and phasically at a fast rate did not result in statistically diff O_2 consumption between treatments. These results suggest that a slow rate of phasic stretch, where the load is often supported, may have decreased the cumulative tension on the muscle and also decreased O_2 consumption.

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429. BRODKIN, P. Developmental differences in motivation for participation in competitive swimming. M.S. in Physical Education, 1988, 108 p. (M.R. Weiss)

430. CAINE, D.J. An epidemiological investigation of injuries affecting young competitive female gymnasts. Ph.D. in Physical Education, 1987, 171 p. (E. Glover)

Baseline data were collected, then injury information was obtained through a prescribed form of injury surveillance for 1 yr (n=50). The overall injury rate was 3.66 injuries per 1,000 hrs participation. The ankle was the most frequently injured body part (21.1%) followed by the knee (14.3%) and lower back (12.2%). More than half of the injuries (55.8%) were characterized by a gradual onset. The most frequent injury type was nonspecific pain (40.1%) followed by sprains (19%) and strains (17.7%). The majority of strains (61.54%) occurred during the 1st hr of practice. The incidence of reinjury was 32.7%. The majority of injuries (59.2%) resulted in more than 7 days' time loss before return to full practice. Consult-ation with a physician occurred in 40.1% of the cases. Canonical correlation anal was used to determine the multivariate relationship between the injury variables and selected host and environmental variables. This anal resulted in a nonsig effect, Wilks' lambda = .6708 F(12,84)=1.55, p < .1239. Discriminant anal was used to determine the extent to which gp classification into high and low risk injury gps could be predicted. When proportion time loss was the criterion variable, discriminant anal resulted in a sig effect, Wilks' lambda=.7288, F(2,23)=4.28, p < .0263. Stepwise procedure identified competitive level (p < .051) and maturation rate (p < .062) as discriminating variables.

431. DUFEK, J.S. The effects of landing on lower extremity function. Ph.D. in Physical Education, 1988, 133 p. (B.T. Bates)

3 semi-skilled M volunteers served as Ss. The exp set-up consisted of a force platform interfaced to a laboratory computer, a high-speed camera, and an adjustable ht jumping tower. Ss were filmed while performing 3 right foot landings on the force platform for each combination of ht, distance and technique for a total of 81 trials. Temporal and kinetic data describing the max impact force value(s) and joint position and velocity data were used in the anal. A single-S anal was employed for all statistical procedures. 1st and 2nd max vertical forces and times of occurrence were anal using a 3-way ANOVA technique. Regression models were used

to identify critical performance factors associated with the forces. A regression model was also computed to identify the most important kinematic variables related to technique. 1st and 2nd max force ANOVA results indicated sig (p = 0.05) ht and distance main effects for S1 and S2, while S3 exhibited sig interactions. The regression anal using the 1st max force as the dv explained 57.6, 82.9 and 40.5% variance for the 3 Ss, respectively, using the independent variables of ht and distance. The incorporation of technique as an independent variable improved the predictions to 81.7, 83.3 and 40.5%. Prediction of the 2nd max force resulted in 31.9, 19.7 and 10.1% and 72.8, 60.4 and 59.1% explained variance for the models, respectively. Prediction of landing technique from kinematic variables produced models accounting for 13.1, 74.0 and 63.1% of the variance for the 3 Ss.

432. HIDDE, S. Students' knowledge, attitudes, and perceptions of susceptibility towards acquired immune deficiency syndrome (AIDS). M.S. in School and Community Health, 1988, 60 p. (L. Davis)

433. HILBY, D. A biomechanical comparison between the standard and revised glide techniques of shot putting. M.S. in Physical Education, 1988, 103 p. (B.T. Bates)

434. JEWETT, J.J. Comparing health status, health care utilization, and the determinants of utilization for the young-old and old-old. Ph.D. in School and Community Health, 1988, 88 p. (J. Hibbard)

The 804 study participants were randomly selected from Medicare part B insurance enrollees in Salem, OR. 1 year of insurance records data were linked with survey data for the anal. Self-ratings of general health were sig lower for the old-old. Similarly, the old-old have sig higher functional disability and sig greater number of chronic conditions than the young-old. No diffs on mental health, social well-being, or health behavior variables are found. The old-old visit doctors' offices sig more often during a 12-mo period than the young-old but spend no more nights in the hospital during a 6-mo period. The fit of Andersen's Behavioral Model, as a whole in explaining health care utilization, is successfully cross-validated for both age gps. In fact, consistent "goodness of fit" estimates are found across all 4 subsamples. For each, the strength of the overall goodness of fit estimate is moderate. Of the 3 factors within Andersen's model which explain health care utilization, the only powerful determinant of utilization is medical need. Need factors are consistently sig and meaningful across all 4 subsamples. The effect of need is quite strong for the old-old subsamples and is moderate to strong for the young-old subsamples. Enabling and predisposing factors do not sig affect utilization for either age group.

435. KINGERY, P.M. Self-efficacy and outcome expectations in the self-regulation of non-insulin-dependent diabetes mellitus. Ph.D. in School and Community Health, 1988, 176 p. (L. Davis)

A sample of 127 patients was assessed on 2 occasions separated by 6 mos to examine the relationship between self-efficacy and self-care in each regimen. A sample of 77 patients was divided into 2 treatment conditions and a control gp and assessed at pretreatment, posttreatment and 2-mo follow-up to examine the effect of treatment on dietary self-efficacy, and to see whether changes in self-efficacy corresponded to changes in self-care. Dietary self-efficacy and self-care were not responsive to treatment over 5 wk sessions, thus no support was provided for 2 of the 3 aspects of the model. Moderately strong correlational support was provided for the 3rd aspect, the relationship between self-efficacy and self-care in the exercise model but less support was provided for that relationship in the dietary and glucose testing models. M scored sig higher than F on exercise self-efficacy, outcome expectations and self-care. In the exercise regimen, self-efficacy was a stronger predictor of self-care for F than for M, while outcome expectations more strongly predicted self-care for M than for F. The combination of age, gender, socio-economic status, self-efficacy and outcome expectations explained as much as 25% of the variance on exercise self-care. Given this evidence of the role of self-efficacy in the exercise regimen, greater attention should be paid to self-efficacy as a cognitive mediator of exercise behavior modification in the self-regulation of NIDDM.

436. LEE, J.Y. Anthropometric regression equations for the estimation of body composition in young female gymnasts. M.S. in Physical Education, 1988, 65 p. (J. Broekhoff)

437. LONGSTAFF, J.S. Moving in crystals: A continued integration of polyhedral geometry with Rudolf Laban's choreutics toward its use as a choreographic tool. M.S. in Dance, 1988, 215 p. (J.W. Descutner)

This study delineates Rudolf Laban's choreutics as a tool for choreographing dance sequences. An extensive review of lit reveals the broad applications of choreutic 3-dimensional geometry. Nevertheless, choreutics as a mvmt technique using polyhedral grids to comprehend harmony in spatial pathways remains in obscurity. Laban's drawings reveal that he structured our mvmt space with the 5 regular polyhedra. These 5 forms' symmetries have been studied for centuries; their structures form the 5 harmonics of 3-dimensional space. Choreutic scales are symmetrical patterns through polyhedra which solve variations of Euler's and Hamilton's geometric puzzles. Choreutics comprehends 3-dimensional symmetry by rotating and reflecting mvmt patterns, thus systematically deriving all possible orientations. These choreutic patterns' link to muscle and joint articulations provides a basis for their embodiment. A glossary of choreutic terms is included, along with over 50 geometric figures, in an ongoing process of bringing choreutics to greater clarity.

438. MITCHELL, N.Z. An analysis of recreation services available through municipal recreation departments to individuals with disabilities in the United States. Ph.D. in Leisure Studies and Services, 1988, 153 p. (K.J. Halberg and L.L. Neal)

Discriminant function anal was used to predict philosophical orientation and integrated prog. Data were collected from a questionnaire adapted from Lyons (1982) and mailed to a 50% random sample of US park and rec depts. The response rate was 37.7%. Rec services to disabled persons were available in 42.9% of the depts. Ranked reasons for not providing services were: (1) another agency provides, (b) insufficient funds, (c) no demand, and (d) lack of trained staff. Preliminary anal using x^2 identified 10 of 21 organizational variables that were sig associated with philosophical orientation. Discriminant function anal showed that plans to upgrade services, leisure counseling, use of comm resources, methods to obtain client information and year round full-time staff can predict philosophical orientation in 55.24% of the depts. Leisure ability emerged as the predominant philosophical orientation. Comm leisure resources guidance, renovation of facilities, decreased fees for individuals, leisure exploration opportunities, methods to develop individualized prog, survey of facilities by disabled persons, cooperation with other agencies, leisure ability philosophy, assisting clients to implement involvement, and prog to upgrade leisure skills can predict integrated prog in 78.84% of the depts.

439. MOON, I.S. Serial pattern learning in adults: A hierarchical model of internal representation and movement control. Ph.D. in Physical Education, 1987, 70 p. (M.H. Woollacott and S.W. Keele)

Ss produced a serial pattern consisting of 9 or 12 elements by pressing keys at max rate with their fingers. After practicing 1 pattern for a substantial period of time, the Ss transferred to a 2nd pattern. The initial patterns were 9 or 12 items, composed of 3 or 4 gps of 3 elements each. 2 types of sequence transformations were used to study the transfer of learning from one sequence to another. (1) Hierarchical: transfer patterns for a hierarchy gp were designed in a way such that the 3 or 4 gps of elements of the practice pattern were rearranged. (2) Linear: for a linear gp, the transfer pattern was identical to the practice pattern except that the starting position was altered. The 3rd control gp received an entirely new pattern. No sig diffs among the hierarchy, linear, and control gps were found in initial training performance. However, on transfer, the hierarchy gp was sig superior to either the linear or control gps. Similar results were obtained regardless of whether Ss first memorized a sequence and then performed it entirely from memory (exp 1) or whether they simply responded to visual signals that occurred in a particular sequence (exp 2). The findings support the notion that the internal representation of a sequence is hierarchically rather than linearly organized and that the execution of movement sequences is controlled hierarchically.

440. OBER-SELCKE, K.M. Study of program effectiveness with the Heart at Work Program in relationship to training versus nontraining of program coordinators. M.S. in Physical Education, 1988, 90 p. (M. Ellis)

441. PICKENS, D.W. The effect of endurance training on the initial rate and absolute magnitude of calcium uptake by the sarco-plasmic reticulum in skeletal muscle. M.S. in Physical Education, 1988, 83 p. (G.A. Klug)

This study examined the effects of endurance training on initial rate and total capacity of calcium uptake by sarcoplasmic reticulum in crude muscle homogenates. F Sprague-Dawley rats were divided into gps of 6, 16, 25 wks of training, and a calcium sensitive mini-electrode was used to meas uptake parameters for tibialis anterior and plantaris muscle. The 16 and 25 wk gps demonstrated a sig depression ($p < 0.05$) in initial rate of uptake for both tibialis anterior and plantaris, with the plantaris showing the greatest change. Sig depression ($p < 0.05$) of max uptake was seen only in the tibialis anterior of the 25 wk exercise gp. Taken with previous work, these findings suggest a training induced reduction in initial calcium uptake resulting from a decrease in the amount of SR protein relative to other muscle proteins, from an inactivation of a number of the $ca^{2}+$-ATPase pumps, or from a combination of the 2.

442. SHEAER, T.W. The effectiveness of a computerized leisure assessment system for individuals with spinal cord injuries. M.S. in Leisure Studies and Services, 1988, 102 p. (K.J. Halberg)

443. SHIELDS, L. Depression and maladaptive eating behaviors in college students. M.S. in School and Community Health, 1988, 75 p. (S. Harvey)

444. SIMPSON, K.J. The effect of running speed on lower extremity joint movements. Ph.D. in Physical Education, 1987, 151 p. (B.T. Bates)

4 healthy M runners volunteered as Ss. The exp setup consisted of 2 cameras, a force platform interfaced with a laboratory computer, and an infrared timing system to monitor 4 running speeds (3.064, 3.573, 4.087, and 4.596 m/s). 8 trials within ±6% of the target speeds were evaluated. Film data were digitized and smoothed using optimally regularized Fourier series. All data were normalized in time by generating 100 interval estimates. In addition, joint moments were normalized to bw and ht for comparison purposes. Peak joint movements about the ankle, knee and hip, and periods of eccentric/concentric activity were evaluated as well as their relative and absolute times and transition occurrences. Diffs were evaluated ($p < 0.$[illegible]) using a within-S statistical model developed [illegible] Bates, DeVita & Kinoshita (1983). Ensemble ave curve anal (Winter, 1987) between and within Ss revealed increasing variability from the ankle to the hip joint. The SD curve patterns were S, speed, and joint-dependent producing diff results for the within and between S anal. The hip moment parameters exhibited the greatest number (60%) of sig speed-related diffs compared to the knee (29%) and ankle (33%). Knee and hip extensor moments increased sig with speed increases. The results suggest individual adaptation to the vertical ground reaction forces, the use of increased hip extensor moments to decrease the braking forces, and the utilization of increased knee and hip extensor moments to increase propulsive force.

445. TARPENNING, K. Effect of a municipal employee health promotion program on health care costs and sick leave utilization. M.S. in School and Community Health, 1988, 75 p. (M. Hawkins)

446. WOOD, K. The effect of fatigue on knee joint position sense in normal and post-operative knees. M.S. in Physical Education, 1988, 59 p. (M. Ellis)

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HATTIESBURG, MISSISSIPPI

447. BROWN, S.P. Left ventricular inotropic response during weight lifting in untrained, weight trained, and endurance trained men: evaluation by echocardiography. Ph.D. in Health, Physical Education, and Recreation, 1989, 178 p. (W.R. Thompson)

This research was designed to meas the cardiac inotropic response of M trained by resistive exercise and by endurance exercise, and to compare these responses to a gp of untrained, anthropometrically-matched, M controls. Ss for this study were recruited from the Jackson, MS and Hattiesburg, MS areas. All Ss were properly informed of the risks involved during the data collection process, and each S presented with no known medical malady which was prohibitive to his participation in the project. The data collection process involved 2 days; 1 to assess each S's biometric parameters and to familiarize and perform the strength test, and another to perform the exercise echocardiographic assessment. A second phase of this process was needed to derive the cardiac meas from the hard-copy M-mode echocardiograms with the aid of a cardiologist blind to the Ss' training history. As revealed by a 1 way ANOVA with repeated meas procedure, the gps were similar on all echocardiographic contractility indices (velocity of circumferential fiber shortening and shortening fraction). It was further demonstrated that the endurance trained M were able to recover faster than the other gps on 2 hemodynamic meas (HR and RPR). Finally, each gp had equal end-systolic diameter meas, and this meas tends to parallel cardiac contractility. Aside from the formalized stated hypotheses of the study, there were other interesting findings of this investigation. The discovery of a lower DBP following acute resistive exercise warrants further study on the time course of this phenomenon. In addition, this study enhanced our understanding of the acute response of left ventricular function during max, dynamic wt lifting. The observation that both end-diastolic and end-systolic diameters decrease during this form of exercise, which contradicts findings from other studies utilizing other forms of resistive exercise, helps clarify our thinking on this important subject. Finally, it was demonstrated that high intensity wt lifting has a pos inotropic effect regardless of the previous training history.

448. NEISLER, III, H.M. Exercise induced changes in lymphocyte populations of competitive collegiate swimmers during a full training season. Ph.D. in Physical Education, 1989 (W.R. Thompson)

The effects of increasing intensities of swim training on pre- (PRE) and post-exercise (POST) total leukocyte count, lymphocytes, and the lymphocyte sub-populations were studied in 17 healthy M competitive coll swimmers volunteers during their competitive season from Aug to Feb. A morning PRE baseline sample was obtained before inception of training with 7 subsequent morning PRE and POST samples spaced throughout the remainder of the season. Hematocrit (Hct), hemoglobin (Hgb), leukocytes (WCB) were counted on a Coulter S Sr. Absolute lymphocyte, T Cells (T3 & T11), B Cells (B1), T-Helper (T4), T-Suppressor (T8), Helper-Inducer (T4+4B4+) and Suppressor-inducer (T4+2H4+) counts were enumerated using a Coulter EPICS C flow cytometer and Coulter 2 color monclonal antibodies. The H/S ratio was calculated. Cortisol was determined by a Radioimmunoassay procedure. The results indicate that there were sig changes across the season in all cellular parameters except PRE hematocrit, hemoglobin and % of B1 cells. PRE cortisol changed sig across the season as did the PRE to POST cortisol values. Additionally, only the absolute nos. of T11-cells, T8-cells, B1-cells, T4+2H4+ cells and the H/S ratio failed to demonstrate sig PRE to POST changes across the season. Furthermore, there was sig interaction between the PRE and POST values of many of the parameters indicating a changing response pattern during the course of the season. This project has demonstrated that persistent alterations in lymphocyte populations, H/S, and lymphocyte sub-populations can occur in a non-impact environment during swim training.

449. PERKINS, JR., G.S. Comparison of male high school basketball coaches of winning male and female programs through systematic observation. Ed.D. in Physical Education, 1989, 144 p. (C. Buschner)

The objective of this study was to observe specific coaching behaviors of 9 M coaches, 4 of which coached M basketball teams and 5 of which coached F basketball teams. All Ss were recognized as being coaches of winning basketball prog by having won more than 50% of all games played over the preceding 3 seasons. Ss were studied, by utilizing the ASU Coaching Observations Instrument with interval recording, over the course of the 1988-89 basketball season. Participants were observed during regular basketball practice sessions in each of the 4 time periods of pre-season, early season, mid-season and late season. Observation sessions were for a duration of 50 min and were videotaped to increase reliability of the study. All hypotheses were tested for statistical sig by using ANOVA with a $p < .05$ rejection level. Results of the study revealed that there were no sig diff detected between the 2 coaching gps for any of the 14 behavior categories tested suggesting that successful M coaches used basically the same behaviors regardless of whether they coached M or F athletes. A sig diff were found to exist when the major category of fb and praise were anal over the 4 time periods. When examined for interaction (Group x Time) no sig was discovered. The major category of Instruction was shown to be the most often used behavior for coaches of M, whereas for coaches of F silence behaviors predominated. This study should be beneficial to future researchers when studying behaviors of coaches in different settings, and for coaches when developing their own personal methods and techniques.

UNIVERSITY OF TENNESSEE **(J.Paul)**
KNOXVILLE, TENNESSEE

450. DRAPER, M. The effects of myofeedback-facilitated quadricep-strengthening exercises on the recovery of quadricep efficiency following anterior cruciate ligament recon-struction. Ph.D. in Education, 1988, 57 p. (C.A.Wrisberg)

The purpose of this study was to determine whether anterior cruciate ligament (ACL) reconstruction patients who performed myofeedback-facilitated, quadricep-strengthening exercises would demonstrate a more rapid recovery of functional meas associated with 12 wk, postoperative quadricep efficiency (isometric strength and active full extension of the knee) than ACL patients who performed the same quadricep exercise protocol without myofeedback. 22 M and F ACL patients were randomly assigned to a treatment (myofeedback) or control (no fb) gp during an initial postoperative therapy session held 1 wk after surgery. Following 12 wk of rehabilitation exercise protocol, the isometric quadricep strength in the operative limb of each s was compared to that in the normal limb and a percentage of normal peak torque was calcu-lated at 3 angles (45, 60 and 90°). A 2 way ANOVA (Groups x Angles) on the percentage scores revealed sig greater recovery of quadricep strength among patients in the myofeedback gp at all angles. Recovery of active knee extension was determined by the no. of days that elapsed between the surgery date and achievement of 0 degrees extension. The results of a t-test for independent samples revealed that patients in the myofeedback gp achieved active full extension in a sig shorter amount of time than did patients in the control gp. It was concluded that the addition of myofeedback to quadricep-strengthening exercises facilitates the rate of recovery of quadricep efficiency following ACL reconstruction surgery.

451. STEVENS, D.A. A valid and reliable instrument for the direct measure of perceived body size in children. Ed.D., 1989.

Body size estimation is one means which can be used to assess the dev of the concept of body-image by children. An instrument for building a model to represent the body-image of an individual child was used in this study, i.e., the Stevens' Block Figure Model (SBFM). The purposes of this study were: (a) to determine the best method of performing the task and scoring the SBFM, (b) to test the reliability of the SBFM as a direct measure of perceived body size for children, and (c) to determine the degree of validity based on the relationship of body-image meas by the SBFM with/for the theoretical constructs of age, gender, IQ, and physical activity exp inside and outside of school. Ss for the study included 60, 7-, 8-, and 9-yr old children in the TN area. The SBFM was the basic instrument used to assess the body size estimations of the following: (a) total ht, (b) leg length, (c) trunk length, and (d) hip width. The assessment of these body segments provided the information from which to determine whether or not children could symbolically represent vertical and horizontal dimensions of their body space. To ascertain the correspond-ence between actual and perceived meas of body size estimation, testing occurred in 2 diff sessions app 7 days apart. The first test session involved making introductions and taking actual body meas. Test session 2 was concerned with using the SBFM to derive the children's ascending estimations of their perceived body size. The anal of the data were conducted specific to the nature of 8 individual subproblems. Data anal were accomplished using r, regression, and multivariate techniques. Results indicated that body size perception is a complex multidimensional phenomena that acts in conjunction with other variables for 7- to 9-yr old children. The constructs of age, gender, IQ, and physical activity exp were all contributing factors to the child's ability to perceive their body size. The overall results indicate that the SBFM: (a) has high reliability (total height, r=.96; leg length, r=.91; trunk length, r=.85; hip width, r.97), and (b) has construct validity as a meas of perceived body size in 7- to 9-yr old children.

UNIVERSITY OF WISCONSIN (W. OTTO)
LA CROSSE, WISCONSIN

452. ANDERSEN, P.H. Behavioral and clinical indicators of Chlamydia trachomatis in women. M.S. in Health Education, 1987. 72 pp. (J. Schindler)

Chlamydia trachomatis is now considered to be the most prevalent sexually transmitted disease in the US today. Demographic, behavioral, and clinical indicators associated with Chlamydia were examined in women attending a family planning prog in order to: 1) determine the prevalence rate of Chlamydia, and 2) identify and refine criteria for selective screening. Chlamydia was isolated from the cervix of 41 (14.28%) of 287 women using the Microtrak^{tm} Chlamydia direct test. Since it is not economically feasible to screen every sexually active woman for Chlamydia, the dev of a selective screening protocol seems to be a reasonable alternative. 10 indicators were sig assoc with the presence of Chlamydia in univariate anal: 1) no. of partners in the last 3 mo, 2) no. of new partners in the last 3 mo, 3) no. of partners with multiple partners in the last three mo, 4) young age, 5) length of time on oral contraceptives, 6) inflammatory cells on Papanicolaou smear, 7) abnormal vaginal discharge, 8) friable cervix, 9) pain with intercourse, and 10) bleeding with intercourse. A stepwise regression anal was done and 7 indicators were sig. 3 of the indicators sig on univariate anal persisted on multi-variate anal: 1) partners with multiple partners, 2) inflammatory cells on Papanicolaou smear, and 3) friable cervix. 4 indicators sig on multi-variate anal were not sig on univariate anal: 1) pain with urination, 2) abdominal pain, 3) previous abnormal Papanicolaou smear, and 4) vaginal odor. The last 2 variables, however, were neg correlated with Chlamydia.

453. BRYANT, S.M. Eccentric viewing and reading performance in patients with macular degeneration. M.S. in Recreation Administration, 1988, 116 pp. (N. Navar)

Reading performance of Ss trained in eccentric viewing (N=4), was compared with the reading performance of untrained Ss (N=4). All Ss had a diagnosis of macular degeneration, were between ages 70 and 85, and had a near vision acuity of between 20/50 and 20/200. Ss ranged in age from 75 to 84 and included 1 M and 7 F. A tangent visual field test determined the exp Ss remaining area of vision. A 30 min training period with eccentric viewing and selected reading exercises preceded the post-test meas. Pre-test and post-test reading accuracy and reading rate scores were meas with the Pepper Visual Skills for Reading Test. An independent t-test revealed no sig diff (p > .05) with reading accuracy or reading rate scores when the m gain scores were compared for the eccentric viewing and control gps.

454. BORGEMOEN, D.L. The effects of various pole lengths on cross-country skiing poling mechanics. M.S. in Physical Education-Human Performance, 1988, 112 p. (W. Floyd)

This study observed the diagonal stride of cross-country skiing cinematographically, to compare the effects of 5 diff pole lengths on the mechanics of the kick, glide and pole implantation phases. The "preferred" pole length was 35 cm less than Ss body ht; the other 4 pole lengths were 10 cm longer, 5 cm longer, 5 cm shorter and 10 cm shorter than the "preferred" pole length. All Ss used the same brand of ski equipment. 13 M and F Ss ranged in age from 20-36 yrs, and skied most of the 5 trials with a diff pole length. All trials were filmed at 150 frames per sec and anal against 9 variables. A single factor ANOVA with repeated measures followed by a Bonferroni t-test was used to anal the following variables: velocity, stride length, stride rate, trunk flexion, trunk extension, angular displacement from trunk flexion to trunk extension, lower leg angle at legs' parallel position, pole plant displacement, and pole angle at implantation. Sig diff ($p < .05$) created by the various pole lengths were found in the absolute angle of trunk flexion, the absolute trunk angle at trunk extension, the horizontal displacement of the pole plant in relation to the support foot, and the absolute pole angle at pole implantation. No sig diff ($p > .05$) were found in velocity, stride length, stride rate, angular displacement from trunk flexion to trunk extension, or the lower leg angle at legs parallel position. It was concluded that specific pole lengths do have an effect on various poling mechanics of the diagonal stride of cross-country skiing.

455. BROWN-MINER, K.M. Relationship of physical characteristics, physiological capabilities, and nutritional habits to female basketball team selection. M.S. in Adult Fitness/Cardiac Rehabilitation, 1988, 85 p. (P.K. Wilson)

This study was designed to determine if sig diff in physical characteristics, physiological capabilities and nutritional habits existed between F who became members of the women's intercoll basketball team and those who competed for a position, but did not make the team. 27 F from the Univ of Wisconsin-La Crosse participated in this study. Nutritionally, diets were anal for daily caloric intake, caloric distribution, and essential vitamins and minerals. Physiological parameters examined were %bf, lean body mass, VO_2max, anaerobic power, and vertical jumping distance. Physical characteristics including age, ht, and wt were meas. An independent t-test found a sig diff ($p < 0.05$) in age between the team members (N-14) and non-members (N-13). In addition, yr of exp playing intercoll basketball was assessed and found to be sig diff between the two gps. All other parameters were found to have no sig diff between team members and non-members. It was concluded that at the Univ of Wisconsin-La Crosse, physiological capabilities and nutritional habits were not a major factor in team member selection.

456. BURNS, E.A. A historical overview of prenatal exercise practices. M.S. in Adult Fitness/ Cardiac Rehabilitation, 1988, 75 pp. (P.K. Wilson)

The primary purpose of the study was to provide a descriptive historical account of exercise practices during pregnancy from 1700 to present day. The secondary purposes examined the influencing factors of the changing attitudes toward exercise in pregnancy including the role of women in society and women's participation in sport activities. The population studied was primarily limited to white, middle and upper income women of the US. The review of the lit was presented in 4 sections: (1) the colonial and early national era, 1607-1835; (2) the victorian era, 1835-1910; (3) early to mid-twentieth century, 1910-1960; and (4) 1960 to present day. In addition, each era was categorized into the following 3 division: (1) woman's role in society: (2) sport activities for women; and (3) medical advice during pregnancy. Recommendations for further study were made.

457. CARINI, J.A. The motivational value of health and safety promotion newsletters in a corporate setting. M.S. in Community Health Education, 1988, 96 pp. (D. Gilmore)

The study examined the effects a health and safety promotion newsletter would have on employees at Norplex, a Division of Universal Oil Products (UOP). The study population consisted of all employees at Norplex in La Crosse, WI, Postville, IA and Franklin, IN. Employees completed a pre-test and post-test questionnaire designed by the researcher. The employees were divided into gps receiving bi-weekly newsletters, monthly newsletters, and no newsletters. The newsletters were written and designed by the researcher. A 1-tailed t-test was used to determine a probable statistical sig between gp values, with a $p < .05$ level for rejection of the null hypotheses. Results of the study indicated that a newsletter relating to health and safety promotion could have an impact on an employees's growth in attitude, knowledge, and personal behavior, based on post-test anal. The employees that did receive a newsletter were in favor of having a related newsletter implemented at Norplex in the future.

458. CARR, N.L. Adult sport participation preference of elementary school students. M.S. in

Adult Fitness/Cardiac Rehabilitation, 1988, 71 p. (Dr. W. Van Atta)

This study was designed to determine if gender, age, and family sport participation had any influence on elem school students' (N=222, age 6-10) choices of type and no. of sports to participate in upon reaching adulthood. A 27 item questionnaire was used to determine age, gender, desire to participate in a given sport, as well as the no. of sports chosen. [Questionnaire responses were evaluated by determining frequency and percentage of yes versus no answers to each sport.] A x^2 test was used to determine statistical sig between gender, age, age by gender variables for selected sports choices ($p < .05$). A 2-way ANOVA and a Scheffe Post Hoc test were used to analyze gender and age diff in the no. of sports chosen ($p < .05$). It was concluded that gender, age, and age by gender variables had a sig relationship to selected sports choices. Gender showed a sig diff in the no. of sports chosen. M chose sig more sports than F. Age showed a sig diff in that 6 yr olds selected sig more sports for participation than the 8 yr olds. No sig diff were seen in age by gender groupings and no. of sports chosen.

459. CASADOS, T. Assessing the need for sign language in Physical Education in the state of Wisconsin. M.S. in Special Physical Education, 1984, 66 pp. (R. Davis)

The need for a sign language package for hearing impaired and/or nonverbal populations, specific to physical educators was researched in this study. A questionnaire was dev and reviewed by a panel of experts to establish content validity. The questionnaire was revised accordingly and mailed to the State Director of Special Educ and the State Supervisor of PE in the state of WI, for approval. Mailing labels were obtained from WI Dept of Public Instruction (DPI). These labels were used to contact the regular physical educators (RPE), special physical educators (SPE), and special educ classroom teachers (SEC). A total of N=225 questionnaires were sent to randomly selected teachers within each of the 3 gps: RPE, SPE, and SEC. Rate of return exceeded 70% after one, 2 wk follow up reminder. Descriptive statistics of percentages and frequencies were used to report the results. Results of the study indicated a sign language package specific to PE was needed, particularly among SPE. Sign language was needed in the professional preparation curr of SPE. RPE did not use sign in their PE classes and did not indicate a need for sign in their professional preparation curr. Special educ classroom teachers indicated a need for a sign language package, specific to PE.

460. CLARK, D.C. Motivation during max VO$_2$ testing of sedentary college aged women. M.S. in Adult Fitness/Cardiac Rehabilitation, 1988, 52 pp. (N.K. Butts)

Extrinsic motivation and its effect on exercise performance has been a subject of controversy in the lit. The purpose of this study was to determine whether verbal encouragement would affect the max physiological responses and/or exercise duration of sedentary coll aged F. Sedentary coll aged F (n=15) performed 2 maxVO$_2$ tests. During one test the Ss were extrinsically motivated through verbal encouragement to exercise as long as possible. The other test was performed with little or no interaction during exercise between the Ss and the researchers. The test sequence (motivation/no motivation or no motivation/ motivation) was randomly assigned. Ss performed each test at the same time of day with at least 24 hrs, but no more than 1 wk between tests. A dependent t-test indicated that the verbal encouragement resulted in sig ($p < .05$) higher maxVO$_2$ values (41.6 vs 39.3 m./kg/min^{-1}), HR (193.5 vs 189.9 beats min^{-1}), Ve (86.8 vs 87.2 1/min^{-1}), and test duration (757.1 vs

699.3 seconds). Verbal encouragement, however, did not result in sig (p > .05) higher RER values (1.07 vs 1.04) of RPE values (19.1 vs 18.7). This indicates that a max effort was given in both tests. Furthermore, there were no sig (p > .05) diff when the variables during the first test, regardless of treatment, were compared with the second test. It appears that in sedentary coll aged F verbal encouragement sig increases maxVO_2, HR, Ve, and test duration. Therefore, when working with this population in exercise prog and classes, it is important to recognize the influence of extrinsic motivation in the form of verbal encouragement.

461. CONE, C.C. The effects of an eight-week stretching and strengthening program on ADL, flexibility, and strength measures of adults aged 60-85. M.S. in Adult Fitness/Cardiac Rehabilitation, 1987, 71 pp. (P. Buckenmeyer)

This study was conducted to determine the effects of a stretching and strength prog on activities of daily living (ADL), flexibility and strength meas in the elderly. 21 exp (E) Ss, 19 F and 3 M, in addition to 4 F control (C) Ss, were tested on 2 separate occasions for flexibility, strength and ADL items. The Ss were all volunteers from the Sauber Manor High Rise Apartment Complex (S.M.) in La Crosse, WI, whose ages ranged from 60-86. An 8 wk prog was conducted at S.M. which emphasized upper body stretching and strength training. Each S exercised 3 times/wk for 45 min, in a seated position. An attendance chart, music, conversation, and graduation party were incorporated to maintain compliance. The specific joint mvmts meas with a double-armed goniometer were: shoulder flexion, extension, adduction, and 2 meas of abduction. Grip strength was meas with a hand dynamometer, and push-and-pull strength with a computerized arm/chest dynamometer. ADL items were determined by using a 15-item modified questionnaire. The data were treated using independent and dependent t-tests with the level of sig set at $p < .05$. Only item #10 showed sig in the ADL items using the dependent "t" in the E gp for the pre- to post-test scores. All of the flexibility items were sig using the dependent "t" in the E gp for the pre- to post-test scores. All flexibility scores were sig when comparing the E and C gps with an independent t-test. 2 of the 3 strength meas were sig with the dependent "t" in the E gp. The high attendance gp (19 or more sessions) improved sig in the push meas of strength when compared to the low attendance gp (18 or less sessions).

462. COX, K.S. A formula developed for the prediction of residual volume of female subjects while immersed. M.S. in Physical Education Human Performance, 1989, 48 pp. (R.C. Green)

The closed-circuit O_2 dilution technique was used to meas RV in 100 F Ss, aged 10 to 56, while seated on land (RV dry) and while immersed to the neck (RV wet). There was a sig diff ($p < .05$) between RV wet and RV dry. A prediction formula for determining RV was developed by regressing smoking history (SH) and the physical characteristics of age, chest depth (CD), HT, WT, and chest diameter (CDI) against RV wet. CDI and SH were not sig ($p < .05$) predictors of RV and, subsequently were not included in the final prediction formula. Through the use of a step-wise multiple regression process, the following prediction formula was developed: 0.0176556(AGE) + 0.03997657(CD) + 0.0149732 (HT) - 0.00747103(WT) - 2.20767. The variation (R^2) attributed to the independent variables was .60. This R^2 was higher than that reported by Crapo et al. (1982) (R^2=.48) and Goldman and Becklake (1959) (R^2=.30). The standard error of estimate (S.E.E.) for this prediction formula was 148 ml. This S.E.E. was less than that reported by Crapo et al. (1982), S.E.E.=38 ml), Goldman and Becklake (1959) (S.E.E.=360 ml), and Grimby and Soderholm (1963) (S.E.E.=326 ml). Using the data obtained from this study, there was a sig diff ($p < .05$) between RV determined from previously published studies (Prev RV) and RV determined from the newly developed formula (New RV). There was also a sig diff ($p < .05$) between Prev RV and RV wet.

463. CUMMINS-COLLINS, M.A. The effectiveness and costs of minimal versus extended professional intervention following a worksite cholesterol screening. M.S. in Community Health Education, 1989, 140 pp. (R.D. Duquette)

To evaluate the effectiveness of 2 dietary educ methods aimed at lowering blood total chol (BTC), 74 F and M Ss participated in a chol screening at their worksite sponsored by Viterbo College, La Crosse, WI. 29 Ss who met the study criteria were randomly assigned to the extended (EPI) and the minimal (MPI) intervention gps and subsequently received 2 diff lengths of dietary instruction from dietitians. 3 mo after initial data collection, follow-up data was obtained. It was discovered that BTC (-16.40) and Body Mass Index [BMI (-.11)] in the EPI gp, and that BTC (13.42) and BMI (-2.5) in the MPI gp did not show a sig change ($p > .05$). However, BTC change comparisons between EPI (-6.38) and MPI (+5.83) implied a more desirable impact by EPI at a sig level ($P < .05$). An examination of EPI and MPI revealed costs of $717.22 and $480.00, respectively; or $51.23 versus $32.00 per person. Applied to the sig change ($p > .05$) in BTC in EPI when compared to MPI, it cost $43.73 to achieve each mg/dl reduction observed in EPI.

464. DAVISON, B.J. Validity and sensitivity measures of the BIA in response to overhydration. M.S. in Human Performance: Exercise Physiology, 1987, 76 pp. (N.K. Butts)

Repeated body composition anal were performed on 30 M volunteers aged 18-25 yrs. The Ss were meas both before and after hydration by hydrostatic weighing

(HW) and bioelectrical impedance analysis (BIA). Validity meas of the BIA were examined relative to HW. Sensitivity of the BIA was meas in response to an overhydration volume of 1.5% of bw in tapwater. The validity of the BIA for % bf was found to be sig ($p < 0.05$) overestimated (2.6-3.1%). Neither the BIA nor HW were sensitive to overhydration as they were not found to be sig ($p < 0.05$) for %bf or LBM. Future studies could include larger fluid volumes and, a larger, more, homogenous sample in an effort to statistically emphasize the physiological effect of hydration and the BIA's potential ability to detect such changes.

465. DIXON, B.J. A comparison of the metabolic response to food in trained and untrained adults. M.S. in Adult Fitness/Cardiac Rehabilitation, 1987 59 pp. (P.K. Wilson)

The resting metabolic response to a liquid test meal (Pillsbury Instant Breakfast, Pillsbury Co., MN) was determined in adult M and F Ss (24-59 yrs). The trained Ss (N = 19) consisted of 15 M and 4 F who regularly ran an ave of 35-40 mi/wk. The untrained Ss (N = 23) consisted of 13 M and 10 F who were members of the faculty and classified staff at Univ of WI-La Crosse. The exp procedure consisted of hydrostatic weighing, ingestion of the test meal and pre-prandial and post-prandial expired air collection. Resting metabolic rate (RMR) was determined from the latter 2 meas, and the metabolic response to the meal (i.e., dietary-induced thermogenesis, of DIT) was the diff between pre- and post-prandial RMR values. A t-test for independent gps was utilized for statistical anal of the results. It was determined that DIT, when expressed in ml/kg/min, was sig greater in the trained Ss than in the untrained Ss ($p < .05$). As hypothesized, there was no sig diff between the 2 gps when DIT was expressed per unit of lean body mass (i.e., in ml/kg LBM/min). It was concluded that the quantity of LBM could play a sig role in determining the metabolic response to food in adults. Further investigation of the capacity of skeletal muscle for thermogenesis is required to clarify the relationship between RMR and DIT.

466. FOSSHAGE, T.A. An analysis of selected cardiovascular risk factors among various occupation populations in the state of Wisconsin. M.S. in Adult Fitness/Cardiac Rehabilitation, 1987, 189 pp. (W.S. Kaufman)

The 7 C-V risk factors of body composition, SBP/DBP, serum chol, HDL concentration, alcohol consumption, tobacco usage (i.e., cigarette smoking), and physical activity were anal to identify any diff in their prevalence rates among the members of the gps assessed. The population consisted of 2800 individuals employed at various locations WI and classified into 30 occupation gps: clerical (N=805), factory worker (N=207), laborer (N=56), management (N=280), military (N=0), professionals (N=951), sales (N=29), service occupation (N=55), skilled tradesmen (N=88), supervisor (N=94), transportation (N=4), household manager (N=12), and other (N=173). The admin of the 277 item Health and Lifestyle Questionnaire and the 7 item physiological screening procedure were conducted by Take Control of Milwaukee, WI. These data were then analy via the 1-way ANOVA and subsequent Scheffe post hoc test, as well as the Chi-square test. The level of sig established for the study was 0.05. These tests revealed that there were sig diff ($p < .05$) in 6 of the 7 risk factors investigated. No sig diff ($p > .05$) was identified for the HDL concentrations for any of the gps. IT was concluded that the methods employed in this investigation were effective in the identification of between gp as well as within gp needs of specific health promotion/disease prevention prog as they pertained to selected C-V risk factors.

467. GENGEMBRE, T.R. Survey of patient's attitudes towards physician assistant competency and friendliness. M.S. in Health Education, 1988, 66 pp. (J.V. Schindler)

A survey of patient's attitudes towards physician assistants was conducted during the spring of 1988. The 194 patients whose attitudes were anal were members of a 65,000 member staff model HMO in metropolitan Milwaukee who had visited one of that organizations' physician assistants in their practice. The findings indicate that physician assistants are successful in demonstrating attitudes of friendliness and competency to all their patients, regardless of the patient's age, gender, race, occupation, educ level, or no. of visits to a particular health center. In addition, patients have diminished perceptions of physician assistants' friendliness when the no. of visits by the patient range from 6 to 10 visits. The results indicate that when a patient's health care is being managed by a team of primary care specialists (i.e., a team of physicians and physician assistants) there is an optimum time that the role of the physician assistant should be explained to the patient. The patient's care is best when the triangle of allegiance between the doctor, the physician assistant, and the patient is cultivated with good educ about the roles of each.

468. GREGOR, T.J. Effects of parallel squat training and 45 degree angle leg press training on absolute strength and relative power acquisition. M.S. in Physical Education-Human Performance, 1988, 80 p. (A.W. Freeman)

This study compared the effects of parallel squat (PS) training and 45° angle leg press (LP) training on the acquisition of absolute strength (AS) and relative power (RP). 30 M Ss (19-24 yr) volunteered with 20 completing the 10 wk prog. The Ss from 3 basic wt training classes were assigned to

2 gps (N=10 PS, N=10 LP). Ss trained 2 times per wk for 20 wk. All Ss performed each strength and power pre- and post-test. The pre-test was performed before the onset of training; the post-test was admin the wk following the conclusion of each respective training prog. Test battery consisted of the vertical jump (VJ), Margaria-Kalamen (MK) power test, one-rep-max (1RM) PS, and 1RM LP. Comparisons were made using a 2 factor ANOVA with repeated meas on 1 factor. When sig was found a Scheffe post hoc test was performed. Statistical anal revealed sig ($p < .05$) diff for AS as meas by 1RM tests for PS and LP training. Sig ($p < .05$) occurred for RP as meas by MK test for PS training. Neither gp showed sig diff in RP as meas by the VJ. It was concluded that the training prog used produced sig improvement in AS for both exp (PS & LP gps, but only PS training produced sig improvement in RP as measured by the MK test.

469. HEBERT, F.F. The impact of the American Heart Association's Heart Health in the Young curriculum on cardiovascular knowledge scores and behavior changes in smoking, exercise, and nutrition in eighth grade students. M.S. in School Health Education, 1987, 94 pp. (R.D. Duquette)

This was a pre-test post-test exp study. The exp gp received 15 (45 min) lessons from the AHA curr. Pre-test and post-test scores were recorded. The control gp attended regular HE classes between the pre-test and the post-test. The Know Your Body Health Questionnaire for grades 6-8 was used as a base instrument to assess knowledge change. The Know Your Body Health Habits Survey instrument was used to assess behavior change in the areas of smoking and exercise. The DINE system, created by Darwin Dennison, was used to meas nutrition change. The data was anal using between gp t-tests and Pearson product moment r. The alpha level was established at the .05 level of sig. Results indicated sig diff in knowledge change scores in the exp gp versus the control gp. None of the 46 Ss in the study reported smoking behavior, making it impossible to test for smoking change. Statistical sig was not demonstrated in exercise behavior change in either gp. There was not a statistically sig r demonstrated in either the exp or the control gp between knowledge change scores and change scores in exercise behavior. Interestingly, statistical sig was demonstrated in diet behavior in a neg direction. Both gps decreased their heart healthy nutritional behavior from pre-test to post-test. The exp gp also demonstrated a statistically sig r between knowledge change and diet change, illustrating decreased heart healthy diet with increased knowledge. This was not true in the control gp. The study indicates the need for comprehensive long-term HE prog to bring about necessary changes in health habits and skills.

470. HEUSCH, L. The relationship between body image and body composition, physical condition, and weight concerns of female college freshmen. M.S. in Adult Fitness/Cardiac Rehabilitation, 1988, 66 p. (P.K. Wilson)

33 F coll freshmen were studied to compare the perceptions of body image to direct meas of select variables which influence body image. Ss were required to complete the Body Esteem Scale (Franzoi & Shields, 1984), perform a VO_2max test, and have underwater wt meas. Comparison was then made between self-perceptions and meas values. In regards to bw, Ss were found to possess a better body image as wt decreased. In addition, body satisfaction increased in those who classified themselves into lower wt categories. No sig was found between S wt perception and % bf, indicating an inaccurate assessment of bw. A high r was found between the Ss' perceptions of ideal bw and the meas desired bw. Such that as calculated desired bw increased, perceived ideal bw decreased. In

regards to physical condition, no sig was found between body image and level of physical condition. It was therefore concluded that Ss were more satisfied as % bf and self-perception of wt decreased, but the Ss held distorted perceptions with regards to self-perception of wt, with those of heavier wts being more distorted in their perception of ideal bw. It was also concluded that the Ss were not correct in their perception of physical condition.

471. HILGENBERG, H.A. The effects of a season of intercollegiate basketball on various fitness measures of women players. M.S. in Adult Fitness and Cardiac Rehabilitation, 1988, 60 pp. (P.K. Wilson)

This study examined the effects of a season of intercoll basketball on various fitness meas of F players. Wt, body composition, aerobic fitness, peak anaerobic power, and vertical jump ht were anal through the use of 5 separate tests. These 5 tests were admin before and after the playing season to 11 members of the Univ of WI-La Crosse Women's Basketball Team. The pre-season tests were conducted before regular team practice began, while the post-season tests were completed 2 wks following the last competitive game. A dependent t-test revealed only one sig diff ($p < .05$) in this study. The sig diff was a reduction in %bf.

472. KOLBERG, R.J. Factors associated with perceived emotional, instrumental, and informational support for breastfeeding mothers. M.S. in Health Education, 1989, 94 pp. (G. Matheson)

Variables were examined to determine their relationship to perceived emotional, instrumental, and informational support as meas by the Hughes Breastfeeding Support Scale (R.B. Hughes), and exp by breastfeeding mothers (N=83) within the tri-state area surrounding LaCrosse, WI. Univariate anal found the following results when examining diff: 1) women whose male partner attended a breastfeeding educ prog had higher levels of perceived instrumental support and total support than women whose male partner did not attend an educ prog, and 2) first-time breastfeeders had lower perceived informational support than women who had breastfed previously. Univariate anal found the following results when examining relationships: 1) as the no. of breastfeeding educ prog attended by women increased, perceived informational support increased, and 2) as perceived support from individuals or organizations increased, total perceived support increased. The individuals or organizations with the highest r with perceived total support were: 1) the breastfeeding support gp, 2) the family practitioner, 3) the midwife, and 4) the father of the baby. The highest r for each subscale were the following: 1) instrumental support - breastfeeding support gp, 2) emotional support - family practitioner, and 3) informational support - family practitioner.

473. KOWALSKI, T.F. Self motivation, compliance, and reasons for attending the La Crosse Exercise and Health Program - Adult Fitness Unit. M.S. in Adult Fitness/Cardiac Rehabilitation, 1988, 91 pp. (W. Kaufman)

This study examined factors such as self motivation and exercise habits (compliance or noncompliance) as well as participant reasons for attending the La Crosse Exercise and Health Prog Adult Fitness Unit. Participants were categorized as compliant (C) or noncompliant (NCOMP), a.m. or p.m., and M or F. Self Motivation Scores were determined by the Self Motivation Inventory (SMI) and participants were categorized into Low Self Motivators (LSM), Medium Self Motivators (MSM) or High Self Motivators (HSM). In addition, an Evaluation Questionnaire was developed by the researcher which addressed many of the factors relating to prog compliance. The 2 instruments were admin to 79 Adult Fitness Ss, with a return rate of 77.2%. A chi-square test revealed no sig diff between SMI scores and each of the participant groupings. Further, no sig diff was found between exercise habits and each of the gps addressed. The C Ss were more likely to participate in aerobic exercise sessions outside of the prog than the NCOMP. More C Ss strongly agreed that their graded exercise test (gxt) was clearly explained to them. A.M. and M Ss joined upon the recommendation of their physician, while p.m. and F Ss joined because of family or spousal influence. A larger percentage of the a.m. Ss believed the exercise sessions did not interfere with daily activities and that the facilities were easily accessible to home and/or work. A larger percentage of the F Ss believed the exercise facilities were clean and pleasant compared to the M Ss.

474. KUSCH, J.M. A descriptive study of the effects of parental timing, parental status, work status and work perception on the developmental issues identified by Estes (1977) in women in their 30s. M.S. in Health Education, 1988, 117 pp. (M. Dosch)

This research examined the level of exp the 30s decade issues identified by Estes (1977) among women aged 34-41, by comparing possible diff in certain categories. These include parental timing (early, late and caboose), parental status (mothers and childless women), work status (homemaker exclusively, part-time or full-time work outside the home) and work perception (job or career). A survey was developed and mailed to 480 Univ of WI-La Crosse F alumni. The 249 (51.9%) respondents answered demographic questions that placed them in the 4 categories mentioned before, the questions eliciting their perceptions about the 30s decade. Demographically, 38 yrs was the m age, 83.3% were in the professional-managerial category, 75% were in first marriages, 49% had Bachelor's Degrees plus credits. Religiously 55.8% were Protestant and 32.1% were Catholic. Racially, 99.2% were white, 83.5% lived in the Midwest, and the m income was $30,000 dollars. In the 4 categories, 187 (75.4%) were mothers and 61 (24.6%) were childless. There were 130 (70.3%) early-timing mothers, 44 (23.8%) late-timing mothers and 11 (5.9%) caboose mothers. There were 41 (16.9%) homemakers exclusively, 47 (19.5%) worked part-time, and 154 (63.6%) worked full-time; 27 (10.8%) perceived work as a job and 178 (71.5%) perceived it as a career. The chi-square test demonstrated sig diff (P < .05) for 3 of 32 null hypotheses. Diff between parental status and productivity and creativity, parental timing and diff from parents, and work perception and diff from parents, were sig at P < .05. 2 additional hypotheses relating to productivity and creativity were close to sig.

475. LICATA, S.M. A comparison between three different submaximal walking conditions. M.S. in Adult Fitness/Cardiac Rehabilitation, 1988, 75 pp. (P.K. Wilson)

The 3 walking conditions compared in this research were: walking with no weights (NW), walking with walking sticks (WS) and walking with 2 lbs hand weights (HW). Active M from 20-31 yrs old volunteered for the study (N=21). Each S was randomly assigned the order in which they would take the tests. The physiological variables compared between the 3 gps were: VE, absolute oxygen consumption (AOC), relative oxygen consumption (ROC), respiratory exchange ratio (RER), HR, RPE, general (RPEg) and arms (RPEa), SBP and DBP. A 1 way ANOVA with repeated meas was performed on the data. The Physiological variables that resulted in sig F-ratios (p < .05) were anal using a Scheffe post hoc test. The Scheffe post hoc test identified where the diffs were between the 3 test gps. The Scheffe post hoc test revealed that the following variables were sig higher ($p < .05$) when NW was compared to WS: VE, AOC, ROC, RER, HR, RPEa and SBP. The Scheffe post hoc test further revealed that the following variables were sig lower ($p < .05$) when NW was compared to HW: VE, AOC, ROC, RER, HR, RPEa, SBP and DBP. The Scheffe post hoc test also revealed that the RPEa was sig higher ($p < .05$) with WS than when they walked with HW.

476. LITZAU, K.L. Physical condition levels of non-severe asthmatic boys Ages 8-14. M.S. in Adult Fitness/Cardiopulmonary Rehabilitation, 1987, 96 pp. (P.J. Buckenmeyer)

The physical condition levels of non-severe asthmatic M (N=8) were assessed and compared to matched non-asthmatic peers (N=8) of similar physical characteristics (age, ht, and wt). Physical condition was evaluated through meas of: 1) cardiopulmonary meas: exercise tolerance - via total treadmill duration time, submax MET and RPE levels of a HR of 170 beats per min, using a Modified Balke Protocol, and pulmonary function - via m FEV_1, FVC, FEV_1/FVC ratios both before and 5 min after the exercise tolerance test, and 2) physiological meas: flexibility, and muscle strength and power - via m torque values for R and L elbow/knee flexion and extension at 60^o and 180^o per sec (strength and power respectively). A t-test for paired diff revealed sig m diff ($p < .05$) in left elbow extension meas for power. Insig m diff were observed for all remaining parameters meas. Results indicated that non-severe asthmatic's physical condition levels were not sig diff from matched non-asthmatic peers.

477. LOPRINZI, M. The effects of nutrition education sessions relating to dietary iron on the dietary iron intake of high school wrestlers. M.S. in Adult Fitness/Cardiac Rehabilitation, 1987, 47 p. (A. Freeman)

This study compared the iron intake of HS wrestlers before and after the participation in 3 nutrition educ sessions relating to dietary iron. The nutrition educ sessions consisted of "The Basic Food Groups," "What is Iron Deficiency?," "How Iron Deficiency Affects Wrestling Performance," "Sources of Foods High in Iron", "Methods of Prevention of Iron Deficiency," "How to Increase Iron in the Diet," "Label Reading for Iron Determination," "How Iron is Lost form the Body," "Signs and Symptoms of Iron Deficiency," "Vitamin Supplements." and "Assertiveness." All educ sessions included supplemental handouts pertaining to topics presented. The iron intake was meas by a 3 day dietary recall on food record sheets by the Ss before and after the educ sessions. The results were meas on the Nutrition Data Base Computer System. The Ss consisted of 24 Logan HS and Aquinas HS wrestlers of La Crosse, WI. The Ss ranged in ages from 14 through 18. A t-test for 2 dependent gps was used to anal the iron content results. There was a sig diff ($p < .01$) between the iron content of the Ss of the exp gp before the after exposure to nutrition educ sessions relating to dietary iron. There was no sig change ($p > .01$) in the iron content of the control gp. It was concluded that nutrition educ sessions relating to dietary iron could have a pos effect on the dietary iron intake of HS wrestlers.

478. MALEY, M.A. The availability of cardiac education programs to family members. M.S. in Adult Fitness/Cardiac Rehabilitation (T. Hutchinson)

A questionnaire developed by the researcher was used to investigate hospital-based cardiac rehabilitation unit's (n=122) cardiac educ prog offered to 3 gps; client-only, client/family, and family-only. The educ prog were divided into 4 sections: assessment, intervention, reinforcement, and evaluation components and phases. Greater than 50% of the respondents offered the assessment and evaluation components and the assessment phase to the client-only gp and not to the other 2 gps. Greater than 50% of the respondents offered the intervention and reinforcement components and the intervention phase to the client/family gp versus the other 2 gps. The family-only gp received no components or phases by more than 50% of the respondents. A greater percentage of health professionals were also found to believe that CV risk factor assessment and modification could affect the incidence of CAD (93%), and that there is a familial predisposition to CAD (89%), and that hospitals should offer family members of their cardiac patients individualized risk factor assessment and modification prog (92%). It was concluded that the family is not being offered individualized cardiac risk factor assessment and modification prog, however, health professionals do believe that hospitals should be offering these prog to them.

479. MCLEAN, D.M. A relationship of swim, cycle, and run ventilatory threshold and performance times in a triathlon. M.S. in Human Performance, 1987, 83 p. (N.K. Butts)

23 triathletes, 16 M and 7 F (19-32 yrs) randomly performed max tethered swim (TS), bicycle ergometer (BE), and treadmill run (TR) tests prior to participation in a competitive triathlon (0.57 mi. swim, 24.8 mi., cycle, 6.2 mi. run). Ventilatory threshold (TVENT) responses were anal using 2-way mixed design ANOVA with repeated meas. When sig ($p < .05$) was found, a Scheffe post hoc test was conducted. M achieved sig ($p < .01$) higher absolute and relative TVENT values than F across all exercise modes. For the gp, absolute and relative TR TVENT values were sig ($p < .01$) higher than respective RS and BE TVENT values. M absolute and relative TR TVENT values were sig ($p < .01$) higher than TS or BE TVENT values. TR TVENT values were sig (p

$< .05$) higher than TS TVENT values. Triathlete TVENT values approached those of the unisport specialists. Absolute, relative, and %maxVO_2 TS TVENT were sig ($p < .001$) and moderately to highly ($r=-.71$, $r=-.65$, and $-.70$ respectively) correlated to swim time. Relative BE and TR TVENT values were sig ($p < .001$) and highly ($r=-.70$ and $r=-.81$, respectively) correlated with respective cycle and run segment times. Relative TS, BE, and TR TVENT values were sig ($p < .001$) and highly ($r=-.71$, $r=-.77$, and $4=-.78$, respectively) correlated to total performance time. It was concluded that, overall, relative TVENT was the best predictor of both intramodal and total performance times.

480. MEYER, M.L. Relationships between general well-being, coping resources, and immunoglobulin A in HPER graduate students. M.S. in Adult Fitness/Cardiac Rehabilitation, 1987, 79 pp. (P.J. Buckenmeyer)

This study was designed to determine the relationships between changes in self-reported General Well-Being (GWB) scores, Coping Resource Inventory (CRI) scores, and changes in immunoglobulin A (IgA) levels. Immunoglobulin A is an antibody found in serum and saliva that is responsible for protection against infection. In previous studies it has been shown to decrease in Ss under high stress. Data was collected from 25 grad students in the Dept of HPER on 2 trial periods; trial 1 (T1) took place at the beginning of the fall semester, and trial 2 (T2) took place during mid-term examination week. Each S completed the GWB, the CRI, gave 10 ml of blood, and spit into a tube for a 5 min period. Scores and IgA levels on T2 were subtracted from scores and IgA levels on T1 to give diff scores. Pearson product moment r coefficients were computed for all diff scores and diff IgA levels. No relationship was found between either the GWB or CRI diff scores and diff IgA levels. Coping Resource Inventory scores were found to be sig (p

< .05) related to GWB scores. It was cautiously concluded that usage of coping resources may have a mediating role in the effects of stress on immune functioning.

481. MICZULSKI, K.A. An exchange theory perspective of factors affecting membership in the American Association of Cardiovascular and Pulmonary Rehabilitation (AACVPR). M.S. in Adult Fitness/Cardiac Rehabilitation, 1987, 143 pp. (P.K. Wilson)

A questionnaire was sent to 300 cardiopulmonary practitioners to determine if select demographic variables, job satisfaction, or assoc benefits affected membership in the AACVPR. The sample population was divided into 3 gps, 2 of which consisted of AACVPR members (Ms); the third did not. Chi-square anal revealed a sig diff ($p < .05$) among the gps for occupation, position title, yearly salary, and highest educ level attained. These variables were predictive of AACVPR membership. Job satisfaction was not considered to affect membership since ANOVA showed no sig diff ($p > .05$) among the gps regarding this factor (F). Respondents (rs) ranked on a Likert scale their degree of expectation for receiving 62 assoc benefits. A factor anal extracted 13 Fs from these items. Those Fs on which gp m scores were above 3.0 and/or those on which ANOVA showed a sig diff ($p < .05$) among gps were considered to have an affect on membership (Yeager, 1981). According to exchange theory, Ms were expected to value more highly than nonmembers (NMs) assoc benefits, especially the private benefits typically available only upon membership. However, results showed both (Ms) and NMs) expected to receive 7 of the 13 Fs. In descending order of expectation the Fs were New Information, Professional Dev, Tangible Educ Benefits, Meetings, Professional Communication, Personal Dev, and Professional Autonomy. These Fs were or would be influential reasons for Rs to join the AACVPR. Those Ms who additionally belonged to a state cardiac rehabilitation assoc (SCRA) expected sig more (p < .05) than NMs the Fs Professional Dev and Meetings. Ms and NMs diff most on the F Political Activity. Ms highly valued this F; NMs did not. Ms also expected this F sig more (p < .05) than NMs. Of the 13 Fs, Political Activity, Professional Dev and Meetings appeared to affect individuals' decisions to join the AACVPR the most. The null hypothesis is that no sig diff (p > .05) would exist between Ms' and NMs' expectations for receiving assoc benefits was rejected. The use of exchange theory as a rationale to explain membership tendencies was weakly supported. Rs' membership in professional assoc of one form or another, and the fact that half (50.7%) of NMs intended to join the AACVPR may have accounted for the similarity of Rs' expectations. Based on the results of the study, a demographic and assoc profile of AACVPR Ms was constructed, and strategies to assist the AACVPR in recruiting and retaining Ms were dev.

482. NIELSEN, C.G. An electromyographic analysis of the hamstring muscles during bicycle ergometry. M.S. in Human Performance, 1987, 52 pp.

EMG anal performed on a sample of 20 noncompetitive M cyclists between the ages of 18 and 36 was utilized to compare the effect of the upright versus forward-lean position of the trunk on hamstring muscle activity during bicycle ergometry. The peak and summated EMG values, expressed as a percentage of max voluntary isometric contraction, were recorded continuously during a 45-sec testing period in which Ss changed from the upright to forward-lean positions every 15 sec. Paired t-tests revealed sig diff between the upright and forward-lean positions (p < .001) in both the peak and summated activity levels. Pearson product r coefficients showed no sig r between angle of sacral tilt and EMG activity. It was determined that the forward-lean position sig increased hamstring activity and that angle of sacral tilt is not noticeably correlated with EMG activity. Further research is necessary anal EMG activity to find optimum angle of sacral tilt for max hamstring output and to meas peak diff in trunk positions using diff angles of sacral tilt.

483. OLIVER, T.J. The effect of a 6-month and 12-month employee fitness program on employee heart disease risk. M.S. in Adult Fitness/Cardiac Rehabilitation, 1987, 98 pp. (P.Buckenmeyer)

The purpose of this study was to investigate the effect of an employee fitness prog on coronary heart disease risk as measured by selected physiological parameters, after 6 or 12 mo of prog participation. Data obtained from initial physiological assessments and follow-up assessments at either 6 or 12 mo were anal for any statistically sig changes. The 6-mo gp (N=22) consisted of 18 F and 4 M. The 12-mo gp (N=19) consisted of 16 F and 3 M. M, SD, and standard error were calculated for the following variables: chol levels, resting and submax SBP and DBP, bw, % bf, and coronary heart disease risk. A 1-factor, 2-way ANOVA with repeated measures was computed to determine any sig diff. No statistically sig diff at the .05 level were found for chol levels, submax SBP or DBP, or bw. Sig diff were found between the 6 and 12 mo gps at the .05 level for resting SBP and DBP and a sig interaction effect was found for % bf at the .05 level. There were sig diff from pre- to post-exercise participation values for coronary heart disease risk. In conclusion, the data do not strongly indicate prog effectiveness in lowering risk factors for coronary heart disease, however, it is difficult to determine prog effectiveness based on data included in participant files due to incomplete data records, inconsistent participant monitoring, and a small sample population. It is therefore necessary that further studies be conducted in order to more effectively assess the hospital employee fitness prog.

484. OLSON, E.M. A correlation of power tests: vertical jump, Margaria power test, and Cybex leg power test. M.S. in Adult Fitness/Cardiac Rehabilitation, 1987, 57 pp. (E.K. French)

3 tests of power were conducted with 19 F athletes (18-22 yr) from the Univ of WI-La Crosse (N=14 volleyball, N=5 basketball). The vertical jump (VJ), Margaria power test (MPT) and the Cybex leg power test (CLPB) were completed over a 3-day period during the wk immediately following each respective athletic season. A Pearson Product-Moment r coefficient was used to determine if any sig pos r ($p < .05$) existed between the 3 power tests, and if the speed of the CLPT made any sig diff. All r for the study were statistically sig except 2. The highest r between the 3 power tests was with the functional tests--VJ and MPT ($r=.827$). The CLPT speed of 180°/sec had a higher r to the functional power tests than did the CLPT speed of 300°/sec. Bw of the S appeared to be closely related to power output in the functional power tests. In the clinical test (CLPT) where bw was not a factor, there was little relationship of bw to power output. It was concluded that while all 3 tests produce valid meas of power output, the test selected should closely resemble the purpose for testing (i.e., functional power test or clinical test).

485. PAPE-STRONG, S.G. Differences between cardiovascular risk factor modifications of elective coronary artery bypass graft and percutaneous transluminal coronary angioplasty patients. M.S. in Adult Fitness/Cardiac Rehabilitation, 1988, 43 pp. (P. Hutchinson)

This study examined diff between CV risk factor modifications of 30 elective coronary artery bypass graft (CABG) Ss and 20 percutaneous transluminal coronary angioplasty (PTCA) Ss 12 mo after their procedure. All Ss participated in a telephone survey which examined: exercise, diet, smoking, stress, wt, and hypertension control. Results may have been biased due to S selection. A chi-squared anal resulted in sig diff in smoking and hypertension control behaviors. 93% of CABG (n=28) Ss and 78% of PTCA (n=14) Ss were previous smokers, indicating a larger percent of CABG Ss smoked before their procedure. Of the Ss that had a CABG (N=21) 70% are more likely to monitor their BP than the 30% (n=9) that had a PTCA. No sig diff were found between the gps in the following areas of risk factor modification: exercise, diet, wt and stress control. It was concluded that there were no sig diff in risk factor modifications of CABG and PTCA Ss, except as related to smoking and hypertension control.

486. PRICE, R.M. Rape myth acceptance among a population of college students. M.S. in Health Education, 1987, 99 pp. (M. Dosch)

This research examined the level of rape myth acceptance among coll students living in residence halls. A survey was dev and employed to assess possible diff in rape myth acceptance based on the respondents' age, gender, acd class level, coll of enrollment, residence hall living arrangement, hometown comm size, acceptance of interpersonal violence, and personal exposure to the topic of rape. A total of 289 surveys were distributed to students living in residence hall housing. 57 M and 110 F returned completed surveys. Rape myth acceptance scores were determined for each S, with total possible scores ranging from 21 to 62. Anal of responses revealed 111 respondents had low rape myth acceptance. 56 respondents indicated a moderate level of rape myth acceptance. None of the respondents showed a high acceptance of rape myths. Scores reflecting acceptance of interpersonal violence were also determined, with 10 respondents indicating a high acceptance of interpersonal violence. The chi-square test revealed sig diff ($p < .05$) in level of rape myth acceptance on gender, with M showing a higher acceptance of rape myths than F. No sig diff ($p > .05$) were noted among respondents based on type of residence hall living arrangement, acd class level, or coll of enrollment. The Spearman rank order r was employed to test the remaining null hypotheses, with sig relationships ($p < .05$) revealed in 3 areas. Both hometown comm size and personal exposure to the topic of rape were inversely related to level of rape myth acceptance. Acceptance of interpersonal violence was pos related to level of rape myth acceptance ($p < .001$). No relationship was found between rape myth acceptance and respondents' age.

487. RUSSELL, D.D. A new formula for the prediction of residual volume in females. M.S. in Adult Fitness/Cardiac Rehabilitation, 1987, 59 pp. (P.J. Buckenmeyer)

The purpose of this investigation was to develop a new prediction equation for RV in F, based on meas using the closed circuit, O_2 dilution method. A sample population of 124 F, from 10 to 82 yr of age, was selected so that there were 20 Ss in each age decade. The physical characteristics of age, ht, wt, smoking history (Sm), vital capacity (VC), and FEV-1 were meas and subjected to stepwise regression anal, resulting in the prediction equation: RV (liters) = .029 Age + .025 ht - .011 Wt + .013 Sm - 2.689. The standard error of estimation (S.E.E.) = 381 mls), Goldman and Becklake (S.E.E. = 360 mls), and Grimby and Soderholm. However, using the physical characteristics of the Ss from the present study, each of the previously published equations gave predicted

RVs that were sig ($p < .05$) diff from both the actual predicted RVs and the RVs predicted by the new equation.

488. SLAVIN, S. Cardiovascular changes in women with computerized bicycle training. M.S. in Adult Fitness/Cardiac Rehabilitation, 1988, 66 pp. (P.L. Hutchinson)

34 sedentary F with a m age of 34 yr were studied to determine the extent to which training effects would occur after a 6 wk computerized bicycle exercise prog. In addition, training diff between 12- and 24-min computerized protocols were examined. Ss were divided into 5 gps: controls (C, n=10); prog 12 (P-12, n=8), random-12 (R-12, n=4); prog-24 (P-24, n=8); random-24 (R-24, n=4). All Ss received pre-training max bicycle testing, 6 wks of training (3 days wk^{-1}), and post-training max testing. A 7.9% increase was found in VO_2max (ml $kgBW^{-1}$ min^{-1}) after training which was accompanied by a 15.0% increase in total ride time on the bicycle test. Although these changes approached sig and Ss reported that the workloads seemed easier after training (RPE = 16.71 ± 5.27), none of the comparisons were found to be sig. Small group sizes, large SD and low intensity levels for training contributed to the lack of sig. Protocol comparisons revealed a nonsig tendency for the prog protocols to increase VO_2max more (9.8% and 9.2%) than the random protocols (5.2% for both gps). It was concluded that computerized bicycle training is probably a suitable means of CV training for F when it is performed longer than 6 wks.

489. SMITH, C.B. Training effects of water aerobics compared to aerobic dance. M.S. in Adult Fitness/Cardiac Rehabilitation, 1987, 104 p. (N.K.Butts)

11 untrained F Ss were studied to determine if water aerobics would elicit cardiorespiratory and

body composition changes similar to those elicited by aerobic dance. The Ss ranged in age from 18 to 22 yr and included 4 from an aerobic dance (AD) class, 4 from a water aerobics (WA) class, and 3 from a bowling class used as a control gp. Both the WA and AD gps trained 4 d/wk, 40 min/session for 7 wk. All Ss were given pre-(T_1) and post-(T_2) volitional max treadmill tests using the Modified Astrand Protocol. A target HR based on 75% of the max HR value attained on the initial max test was assigned. Training HR's were monitored and recorded daily. The AD and WA gps worked at an aver intensity of 78% and 71% of max HR, respectively. An independent t-test indicated that training HR's of the WA gp were sig ($p < .05$) showed no sig ($p > .05$) diff in: bw, %bf, VO_2max ($L.min.^{-1}$ and $ml.kg.min.^{-1}$), treadmill run time, max VE, and HR among gps at the post-test. These findings indicated that no diff changes occurred in the above variables as a result of the 7 wk training period. It was concluded that, in the present study, neither WA nor AD were effective exercise modes for improving CV fitness or body composition. Exercise in water may elicit a lower HR response than training on land due to physiologic adaptations to exercise in this medium.

490. SMITH, K.L. The effects of contemporary rock and roll music on heart rate, blood pressure, VO_2, perceived exertion and duration in females aged 18-31 years. M.S. in Adult Fitness/Cardiac Rehabilitation,1 1987, 59 p. (P.Buckenmeyer)

3 submax exercise tests were performed on a sample of 27 grad and undergrad level students to determine the effects of fast and slow rock and roll music on certain physiological parameters. VO_2 and duration (D) were meas with the assistance of a Beckmann Metabolic Measurement Cart (BMMC). A modified CM5 lead system was used and HR was recorded on a Burdick EKG RPE was indicated by a

Borg perceived exertion scale and BP was determined using a mercury sphygmomanometer. The 3 exp conditions were no music (NM) slow rock and roll music (SRM), and fast rock and roll music (FRM). 1 condition was randomly assigned for each test. The Ss ran on a treadmill until they reached 80% of their age-predicted max HR. The variables were anal by a 1 way ANOVA with repeated meas at the $p < .05$ level of sig. A Scheffe' test was used when sig F-ratios were obtained to determine which pairs of treatment gps diff. HR was sig higher during the second and fifth stages of the exercise protocol in the FRM condition compared to the SRM condition. VO_2 was sig lower during the fourth stage in the SRM condition compared to the NM condition. Finally, D was highly sig with the Ss running longer during the SRM condition than either the FRM or NM condi-tions. Future studies need to be done in this area to determine how diff types of music and diff test termination points influence these physiological parameters.

491. SMITH, T. Identification of the coping resources determinant of Type A and Type B behavior in adult males and females in a hospital-based health and fitness program. M.S. in Adult Fitness/Cardiac Rehabilitation, 1988, 100 p. (P.K.Wilson)

This study was designed to identify the coping resources determinant of Type A and Type B behavior in 68 adult M and F Ss from the Saint Francis Health and Fitness Center. A total of 28 M and 40 F completed the Jenkins Activity Survey (JAS)-Form T and Coping Resources Inventory (CRI) questionnaires. The JAS-Form T classified 27.94% of the Ss as Type A behavior and 72.06% of the Ss as Type B behavior. An independent groups t-test showed no sig gender-diff on the JAS. The CRI assessed copying resources in five domains (cognitive, social, emotional, spiritual/philosophical, physical) and generated a total score and 5 subscale scores. The variables, total CRI score and gender, were anal for predictability in determining S placement on the JAS; no sig ($\underline{P} > .05$) was found. There was a sig ($\underline{P} < .001$) linear r between physical CRI subscale and attendance. Attendance was then added to a subsequent stepwise multiple regression analysis performed to assess the predictive ability of each CRI subscale score and gender in deter-mining S placement on the JAS. The emotional CRI subscale was the only statistically sig ($\underline{P}=.0182$) subscale. The following regression equation was the best linear relationship between the CRI (emotional subscale) and the JAS: JAS = (-.124 x emotional CRI subscale score) + 14.056.

492. TROJACK, G.M. A comparison of hypertrophy, strength and power changes between eccentric isotonic and eccentric isokinetic leg training. M.S. in Adult Fitness/Cardiac Rehabilitation, 1986, 79 p. (P.K.Wilson)

The effects of a 6 wk eccentric isotonic and eccentric isokinetic training prog on hypertrophy, strength and power development in the quadriceps were compared. M Ss (N=22) participated including 7 training isotonically (T), 7 training isokinetically (K), and 8 control Ss performing no resistance leg training (C). Ss performed 3 sets of 10 rep on Mon, Wed and Fri with an additional set on Fri to systematically adjust work load. No gp sig increased thigh girth or bw. Both gps exhibited carryover of concentric strength from eccentric training in certain tests. (T) improved sig over (C) in isotonic concentric 1 rep max, 5 sec isometric, and both Margaria Kalaman power tests. (T) improved sig over (K) in the concentric isotonic 1 rep max as well. (K) improved sig over (C) in ave concentric peak torque (170°/sec) and in the Margaria Kalaman power test at 6 m. Both gps exhibited carryover of strength when tested at fast speeds from slow speed training pro (60°/sec). (T) improved sig over (C) in aver eccentric peak torque

(170^o/sec) and the Margaria Kalaman tests of power. (K) sig improved over (C) in ave concentric peak torque (170^o/sec), eccentric total work (170^o/sec) and the Margaria Kalaman power test at 6 m. Both gps, sig improved over (C) in eccentric isotonic 1 rep max. Only (K) sig increased ave eccentric peak torque at 60^o/sec over (C).

493. TUCKER, M. Physiological response differences between treadmill and pool running in college-aged women. M.S. in Adult Fitness/Cardiac Rehabilitation, 1988, 59 p. (N.K.Butts)

18 F (19-30) were studied to determine if running in a pool elicited similar physiological responses as treadmill running. Each Ss performed 2 VO_2max tests, one in the pool (P) which consisted of simulating running mechanics while wearing a light wt flotation device (Wet Vest), with the second performed on a treadmill (T). A student's dependent t-test showed the T VO_2max (50.6 $ml\cdot kg^{-1}\cdot min^{-1}$) was sig ($p < .05$) higher than during the p (42.6 $ml\cdot kg^{-1}\cdot min^{-1}$) as were all other physiological responses (absolute VO_2max, $V_E$max, HRmax, and RERmax). It was concluded that, upon immersion, increases in both hydrostatic pressure and intrathoracic blood volume limited ventilatory and CV mechanics. These findings indicated that physiological adaptations occur upon immersion in a water medium which result in lower max responses than those observed on land.

494. TURCO, D.M. An investigation of municipal park and/or recreation department-organized running races in the United States. M.S. in Recreation, 1988, 75 p. (P. Trokan).

This nationwide survey identified and described municipal park and/or rec dept-organized running races implemented with incorporated places ranging from 70,000 to 80,000 in population. Furthermore, this study identified on a national basis, selected running race elements associated with the cited population. This study identified selected running race elements which pertained to participation nos, medical services, registration processes, pre-/post-race activities, scoring and timing and prog budgeting. Survey data was collected through the use of a questionnaire format. A preliminary questionnaire was sent to each agency with the cited population (N=50) to identify municipal park and/or rec depts which organized a running race to describe general departmental characteristics. The return rate of completed preliminary questionnaires was 41/50 or 82% of the sample population. Each site identified as a municipal park and/or rec dept which organized a running race (N=16) received a supplemental questionnaire to describe selected running race elements pertaining to their major race (largest participant number). The return rate of the supplemental questionnaire was 14/16 or 87.5%. Anal of data was based on percentage (frequency of response). Each site identified as a municipal park and/or rec dept which organized a running race was examined for uniqueness or similarity in responses in relation to the other representative sites.

495. VILS, G. The energy cost of horizontal speedwalking in males, 20 to 40 years of age. M.S. in Adult Fitness/Cardiac Rehabilitation, 1987. 84 p. (P.L. Hutchinson)

The primary question to be answered in this study was: what is the energy cost of horizontal speedwalking in M, 20 to 40 yr of age? A sub-question was: what are the diff between speed- walking and running at 4 and 5 mph? A second sub-question was: can a sufficient intensity level be elicited by speedwalking to produce aerobic fitness benefits in M under 50 yr of age? 37 moderately-to highly-trained M ages 20 to 39 performed a symptom-limited graded exercise test (SL-GXT) and 4 ran-domly ordered submax tests consisting of: (1) 4.0 mph speed-walking; (2) 4.0 mph running; (3) 5.0 mph speedwalking; (4) 5.0 mph running. Various physiological parameters including HR, RPE, V_E and V_2, METs, and respiratory exchange ratio (RER) were recorded for each test. The energy cost of speedwalking at 4.0 mph was calculated to be 5.8 METS or 447.8 kilocalories per hr. At 5.0 mph, speedwalking elicited values of 9.3 METs or 737.6 kilocalories per hr. The energy cost of speedwalking proved to be considerably higher than values recorded by ACSM (1986) for conventional walking. A dependent t-test ($p < 0.05$) was used to determine the physiological differences between speedwalking and running at 4.0 and 5.0 mph. All physiological values (V_E, V_2, METs, HR and RER) at both speeds except for RPE at 4.0 mph showed sig diff for Ss to evaluate at the lower intensity speed. Examining intensity levels showed that speedwalking at 5.0 mph did produce aerobic benefits in individuals under 50 yr of age. A test of proportions showed that 80% of the Ss speedwalking at 5.0 mph were able to achieve 65% of their max HR and 50% of their max MET level. Speedwalking at 4.0 mph, on the other hand, did not provide Ss with a sufficient intensity level to produce aerobic benefits. It was concluded that speedwalking can be an exercise alternative which provides aerobic fitness benefits in M under 50 yr of age.

496. WEBER, R.F. Longitudinal study on maximal oxygen consumption in intercollegiate female cross country runners. M.S. in Adult Fitness/Cardiac Rehabilitation, 1987, 56 p. (N.K. Butts)

F cross country runners were studied to determine if periods of formal and informal training sig altered VO_2max and related physiological variables. 27 Ss initially tested ranged in age from 18 to 24 yr. 4 treadmill VO_2max tests conducted over a period of 6 mo included a preseason (T_1), postseason

(T_2), post winter break (T_3), and a 30-days post winter break (T_4) test. 8 to 11 wk of cross country training took place between (T_1)and (T_2), 9 to 12 wk of off-season training from (T_2) to (T_3), and an additional 4 to 5 wk of track season to (T_4). Ten Ss completed all 4 tests. The (T_2) VO$_2$max for 19 Ss was 59.0 ml.kg^{-1}.min^{-1}. Eleven Ss had a VO$_2$max of 56.2 ml.kg^{-1}.min^{-1} for (T_3) and 10 Ss recorded 60.7 ml.kg^{-1}.min^{-1} for (T_4). A 1 way ANOVA with repeated meas was calculated using all Ss who completed each test while the 10 Ss who completed all 4 tests were treated separately. No sig ($p > .05$) diff were found in bw, $V_E$max, VO$_2$max (l.min^{-1} and ml·kg^{-1}·min^{-1}), HRmax, RERmax, and treadmill run time between any of the 4 tests. The results indicated that in-season and off-season training did not diff substantially enough to elicit changes in cardiorespiratory endurance. It was concluded that the high initial fitness level of these Ss contributed to the lack of a sig change in these physiological parameters.

497. WOLK, M.L. A biomechanical comparison of the vertical jump and Margaria power tests. M.S.. in Physical Education-Human Performance, 1988, 82 p. (E.K. French).

A comparison of 2 power tests was conducted using 12 athletes (N=7 M, N=5 F) from the Univ of WI-La Crosse track and field teams. The Ss were filmed in an outdoor setting performing the Margaria stair run test and the vertical jump test. Anaerobic power output and aver vertical velocity were computed for each test based upon 2 methods, 1 a standard or commonly used procedure and a more complex cinematographic procedure involving CG displacement techniques. Using dependent samples, paired t-tests were conducted on the Various combinations to determine if a sig diff ($p < .05$) existed between the 2 methods. All diff were statistically sig except 2. The 2 insig results were produced when power and velocity values were compared between the cinematographic method for the stair run and vertical jump test. This would indicate that when determining anaerobic power output based upon mechanical principles, the Margaria and vertical jump tests appeared to produce similar scientific meas. It was also found that the standard method of the vertical jump test appeared to overestimate power outputs whereas the Margaria stair run test appeared to underestimate power outputs when compared to the cinematographic methods. Although it is still uncertain which test will provide the best meas of anaerobic power, a conclusion drawn from this study was that both tests can be considered functional because of providing ave values which estimate human power output.

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY, BLACKSBURG, VIRGINIA (C.R. Baffi)

498. BEECY, C.M. A test of two educational strategies for lowering blood cholesterol at the worksite. M.S. in Education, 1988, 128 p. (J.L. Walberg)

170 volunteers employed at Hubbel Lighting Inc., Christiansburg, VA were studied to determine the effectiveness of 2 alternative educ strategies for lowering elevated blood chol by modifying the diet. Initially 328 employees were weighed and tested for elevated total blood chol readings (≥200 mg/dl) and were invited to participate in the study. 170 consented to participate and were divided into plant and office populations and then randomized by gender into 1 of 3 exp gps: individuals receiving worksite classes, those who received information on diet and blood chol mailed to their homes, or a control gp. Prior to the baseline blood chol test, Ss completed and returned a pre-test questionnaire used to obtain demographic data and assess baseline knowledge, dietary practices and health-relevant attitudes such as self-efficacy, perceived susceptibility to heart disease, and perceived social

support. Ss also completed a 3 day food record on the first and eighth wk of the study as well as a post-test questionnaire identical to the pre-test questionnaire prior to the second bloods chol test which was performed during the tenth wk of the study. No sig diff were observed over the exp period in bw, knowledge, dietary practices, and health relevant attitudes. Sig diff were observed for the dependent meas of change in the blood chol with a gp and educ level effect identified between Ss receiving worksite classes vs. the control gp (p = .0281**) and Ss with only grade school level educ vs. all other educ levels (p = .0021**). Overall, Ss reduced total blood chol levels by 18 mg/dl or 9% with the M reduction for white and blue-collar gps receiving worksite classes (23 mg/dl or 7%). Ss with only a grade school educ reduced their chol levels more than Ss at all other educ levels. The M reduction in blood chol for Ss receiving information mailed to the home about diet and blood chol was less than the M reduction for Ss in gps receiving the worksite classes. However, ANOVA revealed that there was no statistically sig diff between these 2 gps. Since, the mailed home approach is less costly for the employer, these findings suggest that while the 2 educ interventions may be similar in terms of effectiveness, the mailed home approach is more cost-effective.

499. BURKETT, P.A. Frequent cholesterol feedback as an aid in lowering cholesterol levels. M.S. in Education, 1989, 152 p. (D.R. Southard)

26 M and 2 F participants in the Cardiac Therapy Program at Virginia Tech were stratified, based upon level of total chol (TC) and length of time in the Cardiac Prog, and then randomly assigned to either exp or control gps. Participants ranged in age from 43 to 68 yr and all had baseline TAC levels greater than 200 mg/dl. There were no sig diff between gps in terms of baseline TC (control

M = mg/dl; exp M = 251 mg/dl, BP, wt, predicted % bf, dietary fat/chol, age, educ, or prog attendance. All participants were given a packet of information concerning dietary strategies to lower TC. Each was also asked to complete 3-day diet diaries at baseline, 8 and 16 wk. Ss in the exp gp had their TC checked and were shown a graph of their current and previous TC levels at 4 wk intervals for 16 wk. The control gp was rechecked in 16 wk. After 16 wk, the exp gp's M reduction in TC of 24 mg/dl (-9%) was sig larger than the control gp's M reduction of 6 mg/dl (-2%), ($t(26) = 2.1$, $p < .05$). The dietary record-keeping was incomplete at wk 8 and wk 16. There were no sig diff recorded for BP, wt, or predicted bf. These findings suggest that frequent TAC fb may be a low-cost and effective adjunctive tool for improving adherence to chol-lowering therapy.

500. EARLES-PRICE, S.N. Estimation of internal consistency and stability reliability using isokinetic segmental curve analysis. M.S. in Education, 1988, 141 p. (D.R. Sebolt)

40 normal Ss (19 M and 21 F) (16-43 yr) were studied to examine the reliability of Cybex knee extension curves utilizing Segmental Curve Anal (SGA). Ss performed a standardized isokinetic knee extension/flexion test on the Cybex II isokinetic dynamometer. Test protocol consisted of 5 max rep at 60°/sec with retests within 1 wk of initial test. Quantified parameters were torque at 20°, 70°, and peak of knee extension; area of the curve to 20°, 70°, and peak of knee extension. Most reliable cross trials and days were peak torque ($r = .83$ to $.97$; $R = .98$ to $.99$), area of 70° angles of knee extension ($r = .75$ to $.92$; $R = .97$ to $.99$). For F, coefficients of variation on peak torque, area to 70° area between 20° and 70° ranged from 15% to 18%. For M the range was from 23% to 27%. Appears that

the most reliable indices are variables quantifying torque and power in the middle of torque curves.

501. MORRIS, R.W. Changes in cw-doppler aortic blood flow response, with passive tilting in normo- and borderline hypertensive men. M.S. in Education, 1989, 107 p. (W.G. Herbert)

Continuous-wave (CW) Doppler echocardiographic responses to passive tilting were meas in 39 M using the following protocol: standing; supine; at +20° head-up; supine; -20° head-down. 20 Ss were normotensive (NTN) and the rest were borderline hypertensive (B-HTN) according to prior medical diagnosis. Doppler recordings of blood flow for aortic peak velocity (PkV), peak acceleration (PkA), and stroke velocity integral (SVI) were taken after 15 min in each posture. A skilled technician, using the meas procedures recommended by the instrument manufacturer, positioned the hand-held probe at the supra-sternal notch during recording. For both NTN and B-HTN gps, PkV and PkA were unaffected by the imposed postural changes. The SVI was sig altered ($p < 0.05$) by postural stress, with the NTN gp generally showing greater changes than B-HTNs. The standing-to-supine postural change was associated with the largest change in SVI: NTN = 8.0 to 10.7 cm (+34%) and B-HTN = 7.6 to 8.8 cm (+15%). These results were interpreted as follows: (1) SVI appears to be sensitive to changes in ventricular pre-load, while PkA and PkV are not; (2) SVI changes with passive tilting follow the patterns expected for change in ventricular stroke volume and; (3) attenuated SVI responses to postural tilting may suggest impairment in CV regulation pecular to individuals at risk for hypertension.

502. SNIDER, D.M. Internal consistency reliability of isokinetic response measures in knee injured subjects using segmental curve analysis. M.S. in Education, 1989, 103 p. (D.R. Sebolt)

17 Ss (15 M and 2 F) between the ages of 16 and 51 yr, who had previously sustained an injury to the knee, served as Ss for this study. The test protocol consisted of 5 max reciprocal contractions of the knee extensors/flexors at the speeds of 60°/sec and 180°/sec for the uninvolved limb and at the speed of 180°/sec for the involved limb using a Cybex II isokinetics dynamometer. During testing, all torque and angle data from the Cybex were digitized, sampled between 71 and 200 Hz and stored on a disk for alter anal. The Segmental Curve Anal system displayed, then anal each knee extension torque curve for the following variables: 1) peak torque, torque at 5° prior to peak torque, and torque at 5° beyond peak torque of knee extension curves, and 2) area to 5° prior to peak torque, area between plus and minus 5° of peak torque, and area beyond peak torque plus 5° of knee extension curves. Intraclass reliability was calculated using a 2-way ANOVA for repeated meas. Intraclass r coefficients were extremely high for all of the torque and power in each of the testing conditions ranging from R = .96 to .99. It was concluded that meas of isokinetic torque and power from the SCA system were highly reliable in both injured and uninjured Ss.

503. STOOPS, R.L. Creation of a collegiate level drug testing policy. M.S. in Education, 1988, 287 p. (M.L. Driscoll)

The NCAA, in order to preserve fair and equal competition in intercoll athletics, created a drug testing prog. In 1987 and again in 1988, student-athletes at 2 separate univ challenged the NCAA's drug testing prog in a court of law. As a result, constitutional questions pertaining to a student-athlete's individual rights have surfaced. The purpose of the research was to create a coll level drug testing policy to be utilized during the regular season by NCAA Division I member institution's drug testing prog.

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504. ACOSTA, S. Predicting maximal work capacity using perceived exertion and heart rate in low- and high-fit individuals. M.S. in Physical Education, 1989, 109 P. (D.W. Morgan)

11 low-fit (LF) and 11 high-fit (HF) M cyclists performed duplicate bicycle ergometer tests (T1 and T2) to volitional fatigue to determine the reliability and validity of RPE in predicting max work capacity (MWC), compare RPE and HR in predicting MWC, and determine gp diff in RPE at submax workloads. Submax RPE and HR were regressed to max values (RPE: 19 (MWC_{19}) and 20 (MWC_{20}); HR: age-adjusted HR_{max} (MWC_{AGHR}) and actual HR_{max} (MWC_{ACHR})) to predict MWC. Actual MWC was the total amount of work done for each test. Actual MWC, MWC_{19}, and MWC_{20} of the LF Ss were sig ($p \leq 0.05$) lower than the HF Ss.' Test-retest reliability of the estimated MWCs ranged from 0.73 to 0.86 in the LF Ss and from 0.74 to 0.92 in the HF Ss. Validation coefficients for the LF Ss ranged from 0.76 to 0.91 and from 0.65 to 0.96 in the HF Ss. MWC_{19} and MWC_{ACHR} sig overestimated the actual MWC for T2. ANOVA with repeated meas revealed that across all power outputs the M RPE of the HF Ss during T2 was lower than the M RPE of the LF Ss during T1 and T2. These data indicate that submax RPE can be used to discriminate MWC diff between LF and HF Ss and when MWC is assessed with a single test, extrapolation to RPE of 20 is an accurate method of predicting MWC in LF Ss and HF M cyclists. Prediction of MWC from an RPE of 19, however, appears to be valid during repeat testing of exp M cyclists.

505. HALE, A.M. The relationship between disability status and constraints to travel for

the older adult. M.S. in Physical Education, 1989, 73 p. (M. Blazey)

A 3 part questionnaire was sent to 1350 members of NFO research incorporated's nationwide survey panel. Of this sample there were 1184 individuals who responded to the questionnaire. Within the sample of 1184 persons age 50 and older 65.9% of the respondents were classified as non-disabled and 34.1% as possibly having some type of disabling condition. This was determined by anal of questions dealing with health conditions which prevent travel and disability which makes traveling diff. The primary statistical tool used for this study was a chi-square anal. ANOVA was used to identify where interactions occurred. For the older adults with a disabling condition who did not travel a sig relationship was found between disability status and: k fear of travel on certain types of transportation, travel on commercial airlines, and problems when staying in hotels and motels as deterrents to travel. Among the disabled travelers a sig relationship was found between disability status and: problems in locating a travel companion, lack of spousal interest in travel, diff obtaining travel information, and the requirement of travel planning. Based upon the findings of this study, the following can be stated: 1) disability status does affect the amount and type of constraints that the older adult traveler or non-traveler exp and b) individuals with a disabling condition appear to travel far less than their able bodied counterparts.

506. HILL, B.T. The optimal heights for plyometric depth jumps. M.S. in Physical Education, 1989, 44 p. (J.A. Sawhill)

The purpose of this study was to investigate the optimal ht for performing depth jumps. r between the testing derived optimal drop ht and individual characteristics including max vertical jump, wt, ht, femur length, and thigh circumference was established to develop a method for predicting optimal depth jump ht for individuals. 20 varsity football players from Washington State Univ served as Ss. Testing was conducted once weekly for 3 wk. During each testing session Ss were tested for max vertical jump and for optimal depth jump ht. The box ht used to determine the optimal ht for performing depth jumps ranged form 20 to 100cm. The Pearson product moment r coefficient for max vertical jump and optimal depth jump height was .774. This was sig at the .05 level. A linear regression equation was developed to estimate optimal drop ht. This equation has a .862 coefficient of r with the testing derived optimal drop ht. This is also sig at the .05 level. It is concluded that optimal depth jump ht has a sig r with max vertical jump. The established equation appears to provide a good estimation of the individual's optimal drop ht.

507. JURAN, W.I. A descriptive analysis of deadlift techniques. M.S in Physical Education, 1989, 62 p. (J.A. Sawhill)

The purpose of this study was to describe biomechanical characteristics of sumo style and regular stance deadlift techniques in case study observations of skilled performers. Hip torque, knee torque, and bar velocity were the variables utilized in describing the performances. 7 exp M powerlifters, between 19 and 43 yr of age, from Pullman, WA volunteered for the study. All Ss were filmed with a high speed camera at 50 frames per sec. The Ss consisted of 3 sumo style and 3 regular style lifters. Each S performed his preferred style of deadlifting. The Ss performed a single set of 3 rep at 90% of their 3 rep max (3RM). Data collection was completed during 1 testing session. Regular stance lifters exhibited a 22% increase in bar velocities over sumo lifters. Knee torques were greater in all Ss who performed sumo style lifting. Ave torques were 21% higher for this gp. Hip torques demonstrated no clear pattern as to which were greater for either style or lift. With 1 exception, sumo style lifters lifted more wt. The deadlift was divided into 3 vertical phases. Phase 1 consisted of lifting the bar form the floor to the tibial tuberosity. Phase 2 was defined as lifting the bar from the tibial tuberosity to above the knees. Phase 3 was comprised of lifting the bar form above the knees to the finish position. Hip and knee torques were greatest for sumo lifters during phase 1 and 3. Regular style lifters exhibited 7% greater bar velocities throughout phase 1 and 2 with 39% increase during phase 3.

508. SUCHOW, A.M. Historical perspective of society's attitudes and actions toward disabled individuals: A choreography. M.S. in Physical Education, 1988, 127 p. (K.P. DePauw)

Throughout history, individuals with disabilities have been treated by society in many diff ways. The treatment reflective of social attitudes and actions are defined herein by 4 major historical determiners: survival, superstition, science and service. Trends have changed along a continuum from absolute exclusion toward progressive inclusion and acceptance. A dance presentation was choreographed depicting the attitudes and actions of society toward disabled individuals throughout history. A creative and vivid display of society's humane and harsh treatment exp by disabled individuals throughout time, while attempting to increase the viewer's awareness and understanding of the emotional impact of these treatment practices upon disabled individuals was the result. The choreography was designed for 8 dancers. The presentation was made on Nov 16, 1988 in Jones Theatre, Daggy Hall, Washington State Univ. At a technical/dress rehearsal, a videotape recording was made of the dance project for educ purposes. The thesis committee, participating dancers, and choreographer all evaluated the performance according to an adapted version of a "Final Rating Scale" on the choreographic work. In general, the evaluators described the exp of the presentation as pos and educ.

509. YUN, C.H. Pre- and post-knowledge of results intervals and motor performance of mentally retarded individuals. M.S. in Physical Education, 1989, p. 60. (K. DePauw)

The purpose of this study was to investigate the effects of post-KR and pre-KR intervals upon educable MR children's motor performance. The Ss included 60 Korean educable MR children, ranging in age from 8 yr to 15 yr, 3 mo. Each S was randomly assigned to a 5-, 10-, or 15-sec post-KR interval task under the 0-sec or 5-sec pre-KR interval condition respectively. The data were anal through ANOVA with repeated meas and Duncan's New Multiple Range test. Findings of this study included the following: (a) the gp with 5-sec pre-KR delay, (b) the gp with 10-sec post-KR interval and 5-sec pre-KR delay had sig less error than the gp with the 10-sec post-KR interval and immediate pre-KR, (c) the gp with the 15-sec post-KR interval and 5-sec pre-KR delay had sig less error than the gp with the 15-sec post-KR interval and immediate pre-KR, (d) there was no sig diff between the 10-sec and 15-sec post-KR interval under 5-sec KR delay, (3) under 5-sec KR delay, Ss sig decreased their AE with longer post-KR interval, (f) under immediate KR, Ss sig increased their AE with longer post-KR interval, and (g) the Ss showed greater AE beyond the third block (9 trials). Based upon the results of this study, it is suggested that educable MR child will produce min error on a fine motor task with the 5-sec post-KR interval under immediate KR or with the 10-sec and 15-sec post-KR under 5-sec KR delay.

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ROCK HILL, SOUTH CAROLINA

510. ELDER, C. Differences between female athletes' and non-athletic females' mathematical achievement as measured by the comprehensive tests of basic skills. M.S. in Physical Education, 1989, 45 p. (M.R. Griffin)

The Ss were 93 ninth grade F who played on JHS varsity athletic teams and 173 ninth grade F who had checked, "Since I have been in JHS I have not participated on any school sponsored nor organized athletic teams." The total mathematics score on the Comprehensive Test of Basic Skills (CTBS) was used to meas mathematical ability. An independent t-test of the meas was applied to determine diff. A sig higher CTBS mathematics score (M = 747.63) was found in the group representing athletes over the group not participating in athletics (M = 737.66). The "t" was sig at the .001 level. The need for further study into athletic success, spatial ability and mathematic abilities of F is indicated.

511. GHENT, S.E. Effects of practice on physical fitness scores of preschool children. M.S. in Physical Education, 1988, 52 p. (M.W. Ford)

Kindergarten students were randomly assigned to a control (n=33) and exp (n=23) gp to study the effect of instruction and practice on fitness test scores. Pretests on the bent knee sit-up (AAHPERD, 1980), modified pull-ups (PCPFS, 1985) and V-sit and reach (NCYFS II, 1987) were admin. On the 8th, 10th and 13th days the exp gp was given instruction and practice in performing the 3 tests while the control gp participated in creative mgmt activities. On the 15th day all students were retested. Because there was a sig diff in pretest scores on the sit-up, data for this test were not included in the study. On the sit and reach the exp gp had an initial M of 1.57 and a post-test M of 2.12 while the control gp M was 1.12 and 2.02 respectively. Pre- and post-test scores for the exp gp on the modified pull up were M=4.70 and M=6.43 and for the control gp M=5.48 and M=6.64. While both gps improved scores there was no sig diff between post-test scores of the exp and control gps on either test. For this gp of children instruction and practice did not seem to affect post-test scores sig.

512. HAMMOND, P. Differences in nutritional knowledge of interscholastic and intercollegiate female basketball, softball, and track and field/cross country athletes. M.S. in Physical Education, 1988, 55 p. (M.W. Ford)

A 24 item true/false questionnaire based on nutritional myths was developed by the investigator and admin to 145 HS and 155 coll F athletes. Results were compared according to acd level and sport played. A small but sig diff was found between M scores of coll (M=16.44) and HS athletes (M=15.59). At the HS level varsity softball players were highest while cross country runners scores highest at the coll level. There was little diff in ave scores between sports at either level. Results were also anal by specific topics which included replacing fluids, breakfast, alcohol, losing wt, pregame meals, carbohydrates, calories, milk, sweets/quick energy, vegetarian diets, protein, and vitamins/minerals. HS athletes scored highest in the areas of replacing fluids, breakfast, alcohol and losing wt while coll athletes were highest in losing wt, replacing fluids and breakfast. The greatest diff in scores were on the topics of milk, carbohydrates, alcohol, and vitamins/minerals, with HS athletes scoring higher only on the alcohol questions. Both HS and coll athletes were least knowledgeable on questions relating to protein and vitamins/ minerals. This research supported the many studies which have indicated that athletes' knowledge of nutrition is limited.

513. HORTON, M.L. Computer-assisted instruction as an instrument in influencing the attitudes and intentions of sixth graders toward drug abuse. M.S. in Physical Education, 1988, 59 p. (M.S. Taylor)

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